



# **SERVICE HANDBOOK**

## **Vol. I**

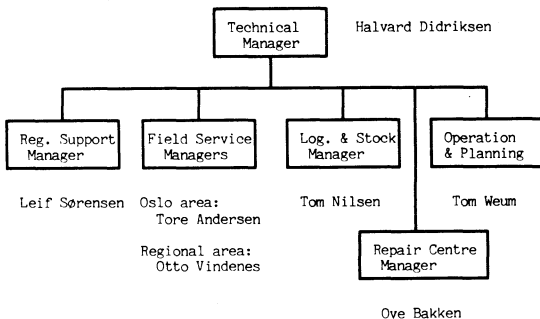
**NAME:** .....

- 1. Customer Support Organization**
- 2. Technical Support Organization**
- 3. Reporting**
- 4. Product Description – System**
- 5. Product Description – Hardware**
- 6. Product Description – Software**
- 7. Datasheets/Brochures Available**
- 8. Manuals Available**
- 9. Support Information System**
- 10. Local Chapter**

Chapter 1

**Customer Support Organization**

CUSTOMER SUPPORT ORGANIZATION NORWAY.



Oslo area:

Oslo  
Bærum  
Hamar  
Fredrikstad  
Drammen  
Tønsberg  
Porsgrunn

Regional area:

Sandnes  
Kristiansand  
Haugesund  
Bergen  
Førde  
Trondheim  
Ålesund  
Steinkjær  
Tromsø  
Bodø  
Harstad

Address/Telephone/Telex/Telefax to ND-Offices in Norway

**Main office:**

NORSK DATA A.S  
Olaf Helsets vei 5  
P.O.Box 25, Bogerud  
0621 OSLO 6  
Tel.: 02-29 54 00  
Dev.ment Dep.: 02-28 83 10  
Tlx.: 18 284 nd n  
Telefax: 02-28 24 94(A)  
New building:  
Tlx.: 74 448 nd n  
Telefax: 02-29 67 96(A)

NORSK DATA A.S  
Jerikovn.20  
P.O.Box 4, Lindeberg Gård  
1007 OSLO 10  
Tel.: 02-30-90-30  
Tlx.: 18 661 nd n  
Telefax: 02-30 92 47(A)

Norsk Data A.S  
Bergen Office  
Conrad Mohrsvei 11  
5032 Minde  
Tel.: 05-28 61 50  
Telefax: 05-28 77 10(A)  
Mobile tel.: 21 269/094-17 291

Norsk Data A.S  
Bø i Telemark Office  
3800 Bø i Telemark  
Tel.: 036-61 211

Norsk Data A.S  
Drammen/Service Office  
Anders Stensrud/Jan E Tallhaug  
Vinjesgt. 10  
3000 Drammen  
Tel.: 03-83 80 50/83 59 18  
Mobile tel.: 29 17 17

Norsk Data A.S  
Fredrikstad/Service Office  
Svein Erik Gustavsen/  
Egil Haraldsen/Tore R Hansen  
P.O.Box 902, Kråkerøy  
1601 Fredrikstad  
Tel.: 032-41 208  
Mobile tel.: 29 13 77/44 717

Norsk Data A.S  
IFE-Halden Office  
Per Kristiansen  
P.O.Box 173  
1751 Halden  
Tel.: 031-83 100/ext.196

Norsk Data A.S  
Hamar/Service Office  
Pål Kampenhøy/Sven O.Hjorth  
Bjørnar Holtet  
P.O.Box 1130  
2301 Hamar  
Tel.: 065-25 308/31 113  
Mobile tel.: 29 13 35/  
29 13 95

Norsk Data A.S  
Kristiansand/Service Office  
Per Otto Stenberg  
Magnus Barfotsv.7  
P.O.Box 4042, Kongsgård  
4601 Kristiansand S  
Tel.: 042-99 333  
Mobile tel.: 094-61 570

Norsk Data A.S  
Porsgrunn/Service Office  
Tore Barstad/M. Ellingsen  
Klyve Industriområde  
3900 Porsgrunn  
Tel.: 035-95 835  
Mobile tel.: 29 07 97

Norsk Data A.S  
Sandnes Office  
Hoveveien 30  
P.O.Box 555, Krossen  
4201 Sandnes  
Tel.: 04-66 75 80  
Telefax: 04 66 75 80(M)

Norsk Data A.S  
Tromsø Office  
Styrmannsvn 13  
P.O.Box 2113  
9014 Håpet  
Tel.: 083-71 766  
Telefax: 083-71 766(M)  
Mobile tel.: 88 250

Tromsø Office  
EVENES  
Erling Greger  
Fjelldal  
9440 Evenskjer  
Tel.: 082-38 625  
Mobile tel.: 21 270

Tromsø Office  
BODØ  
Alf Bechstrøm  
Roald Amundsensv 9  
8000 Bodø  
Tel.: 081-25 901

Norsk Data A.S  
Trondheim Office  
Haakon VII's gt 7  
P.O.Box 78  
7001 Trondheim  
Tel.: 07-92 12 22  
Tlx.: 55 580 ndtrd  
Telefax: 07-92 14 89(A)

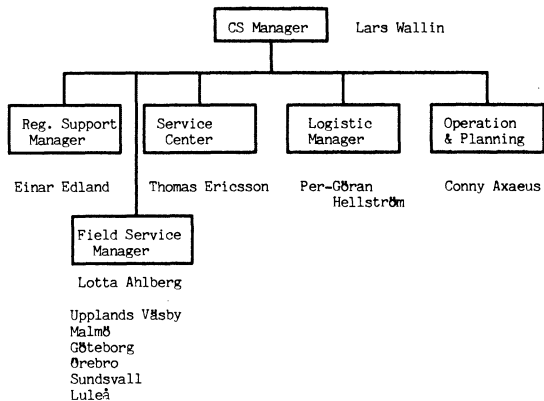
Norsk Data A.S  
Steinkjer/Service Office  
Åsmund Johansen  
Industrivn 1  
P.O.Box 1032  
7701 Steinkjer  
Tel.: 077-65 411

Norsk Data A.S  
Tønsberg/Service Office  
Johnny Trosthoel/Geir Lilje  
P.O.Box 1279, Trudvang  
3101 Tønsberg  
Tel.: 033-12 434  
Mobile tel.: 29 05 34/  
29 15 32

Norsk Data A.S  
Ålesund/Service Office  
Per Yndestad  
6010 Spjelavik  
Tel.: 071-40 907  
Telefax: 071-43 451(M)

Norsk Data A.S  
Mid Norway Office  
Håkon Magnussonsgt 12  
7000 Trondheim  
Tel.: 07 92 12 22

CUSTOMER SUPPORT ORGANIZATION SWEDEN .



Address/Telephone/Telex/Telefax to ND-Offices in Sweden

ND Norsk Data AB  
Kanalvägen 3  
P.O.Box 721  
S-194 27 Upplands Väsby  
Tel.: 46-760-92 000  
Tlx.: 15 255 nordata s  
Telefax: 46-760-86 297(A)

ND Norsk Data AB  
Göteborg Office  
Fröfsteg 22  
P.O.Box 258  
S-421 23 Västra Frölunda  
Tel.: 46-31-49 67 60

ND Norsk Data AB  
Malmö Office  
Södra Tullgatan 3, 4th floor  
S-211 04 Malmö  
Tel.: 46-40-70 510

ND Norsk Data AB  
Luleå/Service Office  
Anders Ulander/  
Bo Bergström  
Tomholmsstigen 15  
P.O.Box 39  
S-95 400 Gammelstad/Luleå  
Tel.: 46-920-57 022

ND Norsk Data AB  
Argongt 34  
S-70374 Örebro  
Tel.: 46-19-13 94 47

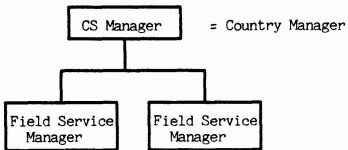
ND Norsk Data AB  
Kjell Stenberg  
S-851 83 Sundsvall  
Tel.: 46-60-12 86 00

ND Silvidata AB  
S-851 83 Sundsvall  
Tel.: 46-60-15 41 50  
Telefax: 46-60-15 39 74(A)

ND Silvidata AB  
P.O.Box 3097  
S-350 03 Växjö  
Tel.: 46-470-46 020

ND Silvidata AB  
Fribergavägen 7  
P.O.Box 93  
S-182 11 Danderyd  
Tel.: 46-8-753 00 70

CUSTOMER SUPPORT ORGANIZATION DENMARK .



East:  
Kjeld Petersen  
Service  
Stock  
Repair

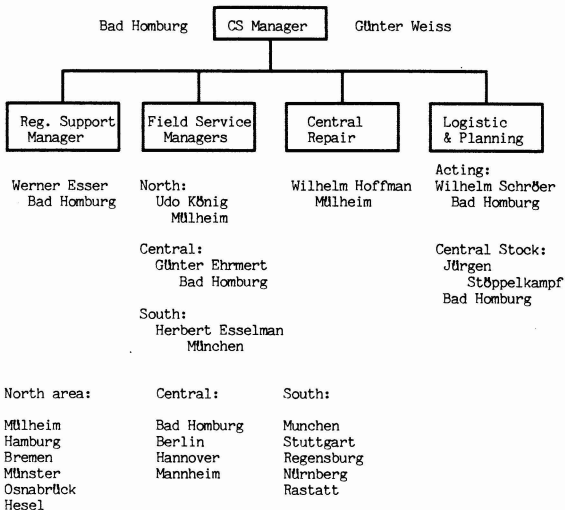
West:  
Peter Grundt Larsen  
Service

København/Søborg

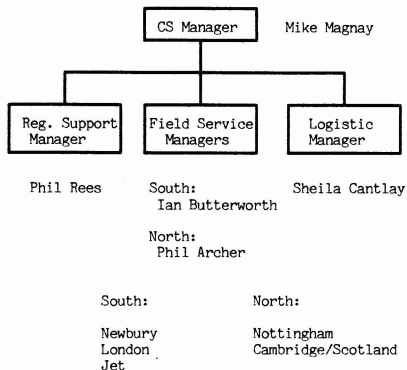
Odense  
Århus



CUSTOMER SUPPORT ORGANIZATION GERMANY .



CUSTOMER SUPPORT ORGANIZATION UNITED KINGDOM .



Address/Telephone/Telex to ND-Offices in The United Kingdom

Norsk Data Ltd.  
Strawberry Hill House  
Bath Road  
Newbury  
BERKSHIRE RG13 ING  
ENGLAND  
Tel.: 44-635-31 465  
Tlx.: 849819 norskd g  
Telefax: 44-635-33647 (A)

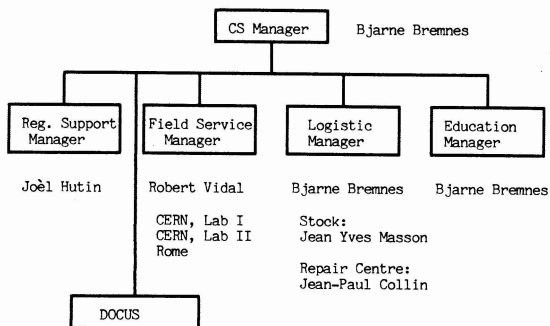
Norsk Data Ltd.  
Service/Chris Kenway  
C/O Baxhor Trading Ltd  
4th floor  
17-19 Redcross Way  
London SE1 1TB  
Tel.: 44-1-378-6635

Norsk Data (Manchester Office)  
Station House  
Stamford New Road  
Altrincham, Cheshire  
WA 14 1EP  
ENGLAND  
Tel.: 44-61-941-6787

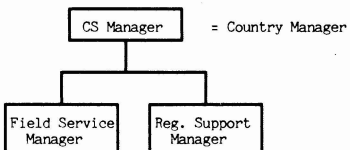
Norsk Data (London Office)  
57-59 London Wall (2nd floor)  
London EC2M 5TP  
Tel.: 44-1-588-9905  
Telex: 88 52 61

Racal-Norsk Ltd.  
Richmond Court  
309 Fleet Road  
Fleet  
Hants GU13 8BU  
Tel.: 44-2514-22 144  
Tlx.: 85 82 94/85 82 95

CUSTOMER SUPPORT ORGANIZATION FERNEY VOLTAIRE .



CUSTOMER SUPPORT ORGANIZATION USA.



Richard (Dick)  
Calhoun

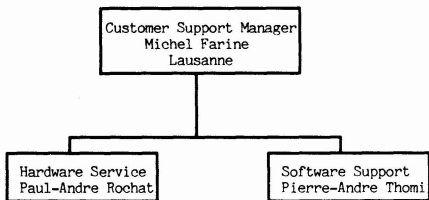
Ted Wood

Service  
Stock  
Repair

Service locations:

Binghamton  
Daytona Beach  
Houston  
Newport Beach (L.A.)

CUSTOMER SUPPORT SWITZERLAND.



Service Offices:

Lausanne  
Zürich

CUSTOMER SUPPORT HOLLAND.

Customer Support Manager:

Dan Andersen, Ijselstein

**Address/Telephone/Telex to ND-Offices in France**

Norsk Data France  
"Le Brevent"  
Avenue du Jura  
F-01 210 FERNEY VOLTAIRE  
France  
Tel. 33-50-40 85 76  
Tlx. 385653 nordata fernv  
Telefax: 33-50-42 88 45 (A)

Matra Datasysteme  
Paris Office  
120, Bureaux de la Colline  
F-92 213 SAINT-CLOUD CEDEX  
France  
Tel. 33-1-60 23 366  
Tlx. 201108 nd paris

Norsk Data France (Grenoble office)  
c/o ENSIEG  
P.B. 46  
F-38240 SAINT-MARTIN D'HERES  
France  
Tel. 33-76-44 14 81

Norsk Data France  
Lyon Office  
3, Allee de Lausanne  
Parc d'Affaires de Chesnes  
F-38290 St. Quentin-Fallavier  
France  
Tel. 33-74-94 44 08  
Tlx. 37 04 72 norlyon  
Telefax: 095-41-21-255594(M)

Norsk Data France  
Technical Office Paris  
Z.A de la Plaine des Godets  
Route du Bua - Entree No. 6  
F-91370 Verrieres-le-Buisson  
France  
Tel. 33-6-920-7220  
Tlx. 690 516  
Telefax:095-33-6-920-7748

NORSK DATA S.A. Switzerland  
Chemin du Viaduc 12  
CH-1008 Prilly-Lausanne, Switzerland  
Tel. 41-21-25 01 22/ Techn.tel.: 41-21-25 01 25  
Tlx. 26 218 ndl  
Telefax:095-41-21-255594 (M)

**Address/Telephone/Telex to ND-Offices in Denmark**

Norsk Data A.S  
Copenhagen Office  
Peter Grundt Larsen(Odense, ND-Comtec)  
Øverødvej 5  
DK-2840 Holte  
Tel.: 45-2-42 50 55  
Tlx.: 37725 nd dk

Norsk Data A.S  
Århus Office  
Aldersrovej 22  
DK-8200 Århus N  
Tel.: 45-6-16-11 66

Norsk Data A.S  
Søborg Office  
Roosenskeret 22B  
DK-2860 Søborg  
Tel.: 45-6-56 12 00

**Address/Telephone/Telex to ND-Office in Germany**

ND Dietz GmbH  
Thomasstrasse 10-12  
D-6380 Bad Homburg v.d.H  
GERMANY  
Tel.: 49-6172-4080  
Tlx.: 004 141 750 53  
Telefax: 49-6172-22 930

**Address/Telephone/Telex to ND-Office in Holland**

Norsk Data AS  
Dan Andersen  
Industrieweg 28  
3401-MA IJsselstein  
HOLLAND  
Tel.: 31-3408-86 734  
Tlx.: 40940 nd nl



**Address/Telephone/telex to ND-Office in Switzerland**

Norsk Data S.A. Switzerland  
Michel Farine  
Chemin du Viaduc 12  
CH-1008 Prilly-Lausanne  
Tel.: 41-21-25 01 22  
Tlx.: 26218 ndl  
Telefax: 41-21-255594 (M)

**Address/Telephone/Telex to ND-Offices in U.S.A**

Norsk Data N.A., Inc.  
Richard J. Calhoun  
55 William Street,  
Wellesley, Mass.02181, U.S.A.  
Tel.: 1-617-23 77 945  
Tlx.: 921 740 norsk well  
Telefax: 1-617-237-7613

Norsk Data N.A. Inc.  
West Coast Office  
1000 Quail Street, Suite 290,  
Newport Beach, California 92660, U.S.A  
Tel.: 1-714-752-5081  
Tlx.: 18 87 47 tab irin

**Address/Telephone/Telex to ND-Office in Thailand**

ND Scantrade Co. Ltd.  
The Pilot Building  
331/1-3 Silom Road  
Bangkok 10500  
Tel.: 49-235-0572-235 05 73  
Tlx.: 008 620 581 ndscanth

**Address/Telephone/Telex to ND-Office in Hong Kong**

Norsk Data International  
Wing on Centre 111  
Connaught Road  
Tel.: 49-5-42 10 40

**Address/Telephone/Telex/Telefax to ND Comtec Offices**

ND Comtec  
Jerikoveien 20  
P.O.Box 4 Lindeberg Gård  
1007 OSLO 10  
Norway  
Tel: 02-30 90 30  
Tlx. 18661 nd n  
Telefax: 02-30 92 47 (A)

ND Comtec  
Haakon VII's gt.7  
P.O.Box 78  
7001 TRONDHEIM  
Tel. 07-92 12 22  
Tlx. 55580 ndtrd  
Telefax: 07-92 14 89 (A)

ND Comtec  
Klokkestøbervej 25  
DK-5230 ODENSE M  
Denmark  
Tel. 45-9-15 74 40  
Tlx. 59680 comtec dk  
Telefax: 45-9-157240

ND Comtec  
København Office  
Øverødvej 5  
DK-2840 HOLTE  
Denmark  
Tel. 45-2-42 50 55  
Tlx. 37725 nd dk

ND Comtec AB  
Upplands Väsby Office  
Kanalvägen 1  
P.O. Box 721  
S-194 27 UPPLANDS VÄSBY  
Sweden  
Tel. 760-84 100  
Tlx. 15225 nordata s  
Telefax: 46-760-86297 (A)

ND Comtec GmbH  
Grafenberger Allee 128 A  
D-4000 DUSSELDORF 1  
Germany  
Tel. 49-211-66 63 88  
Tlx. 8587277 comt d

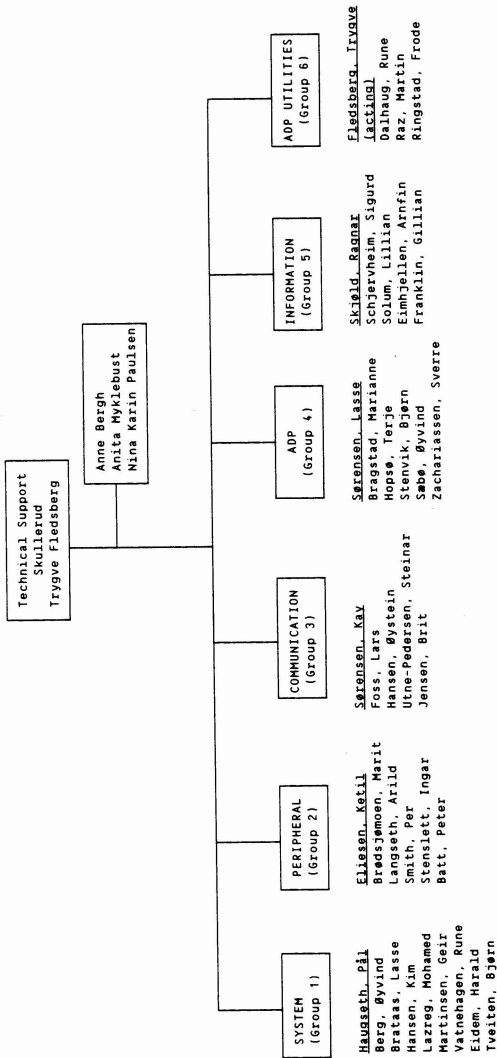
ND Comtec  
Strawberry Hill House  
Bath Road  
Newbury, Berkshire RG13 ING  
ENGLAND  
Tel. 44-635-35-544  
Tlx. 84 98 19 norskd g

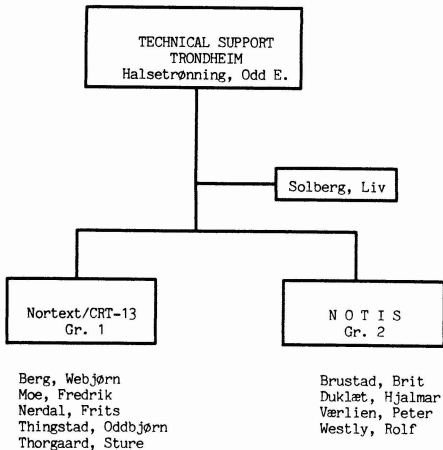
## Chapter 2

# **Technical Support Organization**

TECHNICAL SUPPORT ORGANIZATION

Date: 850424





Technical Support at Skullerud Tel.: +47 2 295400

Name		Init.	Group	Comments
Batt	Peter	PRB	2	Manager, Peripheral group
Berg	Øyvind	ØB	1	CPU/Memory, ND-500 HW
Bergh	Anne	ANB		Secretary
Bragstad	Marianne	MAB	4	ACCESS
Brataas	Lasse	LB	1	CPU/Memory DMA-interface HW
Brødsjømoen	Marit	MIB	2	Streamer, Floppy
Dalhaug	Rune	RUDA	6	ADP Utilities
Eliesen	Ketil	KE	2	Printers, Terminals
Fledsberg	Trygve	TF		Manager, Tech. Support
Foss	Lars	LF	3	Communication SW
Franklin	Gillian	GMF	5	Customer Support Information
Hansen	Kim	KIHA	1	ND-500 HW
Hansen	Øystein	ØBH	3	Communication HW
Haugseth	Pål	PEH	1	Manager, System group
Hopsø	Terje		4	USER ENVIRONMENT
Høgmo	Tor	THØ	4	TPS, TRUE
Jensen	Brit		3	Communication Software
Langseth	Arild	ARL	2	Printers, Terminals
Lazreg	Mohamed	MOL	1	SINTRAN III, Accounting
Martinsen	Geir	GM	1	SINTRAN III, Filesystem, FTS
Myklebust	Anita	AMY		Secretary (Substitute till 30.6.85)
Paulsen	Nina-Karin	NKP		Secretary (on leave till May/June)
Raz	Martin		6	ADP Utilities
Ringstad	Frode	FR	6	System Supervisor
Schjervheim	Sigurd	SSC	5	ECO, SSR, Tech. Information Bulletin
Skjold	Ragnar	RSK	5	Manager, Tech. Information Group
Smith	Per	PESM	2	Power Supply
Solum	Lillian	LISO	5	Service Handbook
Stenslet	Ingar	IS	2	Disks
Stenvik	Bjørn	BFS	4	SIBAS
Sæbø	Øyvind	ØSÆ	4	Fortran debugger
Sørensen	Kay	KS	3	Manager, Communication Group
Sørensen	Lasse	LVS	4	Manager, ADP group
Utne-Pedersen	Steinar	SUP	3	PIOC SW
Vatnehagen	Rune	RV	1	ND-500 SW
Zachariassen	Sverre	SZ	4	TPS, TRUE

TECHNICAL SUPPORT ORGANIZATION / FUNCTIONS & RESPONSIBILITIES  
 DATE: 850426

Technical Support at Trondheim Tel.: +47 7 921222

Name		Init.	Group	Comments
Berg	Webjørn	BW	1	Nortext
Brustad	Brit	BBR	2	Notis-RG
Duklåt	Hjalmar	HD	2	Notis-IR
Halsetrønning	Odd E.	OEH		Manager Tech.Support, Trondheim
Moe	Fredrik	FM	1	CRT-13, Nortext
Nerdal	Frits	FN	1	Nortext
Solberg	Liv	LS		Secretary
Thingstad	Oddbjørn	OT	1	CRT-13, Nortext
Thorgaard	Sture	STH	1	Nortext
Værlien	Peter	PKV	2	Teletext
Westly	Rolf	RWE	2	Notis-WP

Chapter 3

**Reporting**



REPORTING

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<u>Product</u>	<u>Section</u>
HOW TO FILL IN THE DEFECTIVE PARTS TAG	1-1

HOW TO FILL IN THE DEFECTIVE PARTS TAG

**ND** DEFECTIVE PARTS TAG

1) LOG NO.: \_\_\_\_\_

(EXAMPLE ONLY)

- 2) CUSTOMER: ND-F 3) CSN: 100-186
- 4) EQUIPMENT TYPE: N-100
- 5) VENDOR SER. NO.: XXX
- 6) WARRANTY DATE: \_\_\_\_\_
- 7) PART NO.: 322602 CPU 32b fast
- 8) ERROR:  INTERMITTANT  SOLID  SUSPECT
- 9) ERROR DESCRIPTION: CPU halt
- 10) CIRCULATING PART: Y 11) DATE: 11 12) SIGN: NN

- To be left blank for use by spares dept.
- From ND subsidiary or local area in Norway.
- CPU s/n
- Failing equipment.
- Not to be used on ND card - leave blank.
- Date (if any warranty).
- ND p/n and description.
- Intermittant : If the fault is located on this board but not solid.  
Solid : Solid fault located on this board.  
Suspect : You are not sure if the fault is on this board, but it seems to solve the problem.
- You should be very accurate when filling in the error information in english.
- Circulating Y : You do not need physically the same board in return after rework.  
Circulating N : You want physically the same board back after rework.  
Circulating R : You wish to return spare board back to ND/N (sparestock) to be kept here (you are decreasing your local stock).
- Date of shipment.
- Initials of the person who knows why the board has to be sent to rework, (service engineer).

**PRODUCT DESCRIPTION  
SYSTEMS  
84-10**

PRODUCT DESCRIPTION  
SYSTEMS

OCTOBER 1984

T A B L E O F C O N T E N T S

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1 ND PC

## 9710 ND PC MODEL I

Consisting of ND-numbers:

985 P-C with keyboard  
960 Monochrome screen  
10563 ND-Link for ND PC and IBM PC

## 9711 ND PC MODEL II

Consisting of ND-numbers:

985 P-C with keyboard  
961 Colour screen for ND PC  
10563 ND-Link for ND PC and IBM PC

2 ND-100 SATELLITE

## 9810 ND-100 SATELLITE MODEL I A

Consisting of ND-numbers:

100 ND-100 CPU for ND-100 Satellite  
031 Memory management, ND-100  
036 Micro program 2 K prom ND-100  
117 MOS memory 1/2 MB / 22 bit  
271 Terminal interface, 4 lines for ND-100 Satellite  
316 Floppy disk drive 5 1/4"  
317 Controller for 5 1/4" Streamer and Floppy disk drive  
631 Controller for ND 610 and ND 611 23 MB and 45 MB  
Winchester disk  
609 Disk drive, 16 MB fixed 5 1/4" Winchester  
780 Cabinet, power and operator panel for ND-100 Satellite  
Model I  
10044 Subsystem package - 48 bit format  
10049 ND spooling system  
10079 NOTIS-WP for ND-100  
10315 Accounting system for SINTRAN-III E version or later  
10336 Symbolic debugger for ND-100  
10337 Back-up system for SINTRAN-III  
10400 Subsystem package II, includes MAC, QED, NPL  
10780 Sintran III for ND-100 Satellite modell I A  
10628 Sintran III VSE/VSX utility programs  
10634 Memory to floppy dump (MEMTOF-100)

10518 User-environment for ND-100  
 10534 Job Execution Control  
 10130 XMSG for Sintran-III (disc based)  
 10721 BRF-LINKER for ND-100

## 9811 ND-100 SATELLITE MODEL I B

Consisting of ND-numbers:

100 ND-100 CPU for ND-100 Satellite  
 031 Memory management, ND-100  
 036 Micro program 2 K prom ND-100  
 117 MOS memory 1/2 MB / 22 bit  
 271 Terminal interface, 4 lines for ND-100 Satellite  
 316 Floppy disk drive 5 1/4"  
 317 Controller for 5 1/4" Streamer and Floppy disk drive  
 631 Controller for ND 610 and ND 611 23 MB and 45 MB  
 Winchester disk  
 610 Disk drive, 23 MB fixed, 5 1/4 " winchester  
 780 Cabinet, power and operator panel for ND-100 Satellite  
 Model I  
 10044 Subsystem package - 48 bit format  
 10049 ND spooling system  
 10079 NOTIS-WP for ND-100  
 10315 Accounting system for SINTRAN-III E version or later  
 10336 Symbolic debugger for ND-100  
 10337 Back-up system for SINTRAN-III  
 10400 Subsystem package II, includes MAC, QED, NPL  
 10781 Sintran III for ND-100 Satellite modell I B  
 10628 Sintran III VSE/VSX utility programs  
 10634 Memory to floppy dump (MEMTOF-100)  
 10518 User-environment for ND-100  
 10534 Job Execution Control  
 10130 XMSG for Sintran-III (disc based)  
 10721 BRF-LINKER for ND-100

## 9820 ND-100 SATELLITE MODEL II A

Consisting of ND-numbers:

100 ND-100 CPU for ND-100 Satellite  
 031 Memory management, ND-100  
 036 Micro program 2 K prom ND-100  
 117 MOS memory 1/2 MB / 22 bit  
 271 Terminal interface, 4 lines for ND-100 Satellite  
 316 Floppy disk drive 5 1/4"  
 317 Controller for 5 1/4" Streamer and Floppy disk drive  
 631 Controller for ND 610 and ND 611 23 MB and 45 MB  
 Winchester disk  
 610 Disk drive, 23 MB fixed, 5 1/4 " winchester  
 781 Cabinet, power and operator panel ND-100 Satellite Model  
 II  
 10044 Subsystem package - 48 bit format  
 10049 ND spooling system

10079 NOTIS-WP for ND-100  
 10315 Accounting system for SINTRAN-III E version or later  
 10336 Symbolic debugger for ND-100  
 10337 Back-up system for SINTRAN-III  
 10400 Subsystem package II, includes MAC, QED, NPL  
 10782 Sintran III for ND-100 Satellite modell II A, II B  
 10628 Sintran III VSE/VSX utility programs  
 10634 Memory to floppy dump (MEMTOF-100)  
 10518 User-environment for ND-100  
 10534 Job Execution Control  
 10130 XMSG for Sintran-III (disc based)  
 10721 BRF-LINKER for ND-100

## 9821 ND-100 SATELLITE MODEL II B

Consisting of ND-numbers:

100 ND-100 CPU for ND-100 Satellite  
 031 Memory management, ND-100  
 036 Micro program 2 K prom ND-100  
 117 MOS memory 1/2 MB / 22 bit  
 271 Terminal interface, 4 lines for ND-100 Satellite  
 316 Floppy disk drive 5 1/4"  
 627 45 MB streaming tape drive for ND-100 Satellite  
 317 Controller for 5 1/4" Streamer and Floppy disk drive  
 631 Controller for ND 610 and ND 611 23 MB and 45 MB  
 Winchester disk  
 610 Disk drive, 23 MB fixed, 5 1/4 " winchester  
 781 Cabinet, power and operator panel ND-100 Satellite Model  
 II  
 10044 Subsystem package - 48 bit format  
 10049 ND spooling system  
 10079 NOTIS-WP for ND-100  
 10315 Accounting system for SINTRAN-III E version or later  
 10336 Symbolic debugger for ND-100  
 10337 Back-up system for SINTRAN-III  
 10400 Subsystem package II, includes MAC, QED, NPL  
 10782 Sintran III for ND-100 Satellite modell II A, II B  
 10628 Sintran III VSE/VSX utility programs  
 10634 Memory to floppy dump (MEMTOF-100)  
 10518 User-environment for ND-100  
 10534 Job Execution Control  
 10130 XMSG for Sintran-III (disc based)  
 10721 BRF-LINKER for ND-100

## 9822 ND-100 SATELLITE MODEL II C

Consisting of ND-numbers:

100 ND-100 CPU for ND-100 Satellite  
 031 Memory management, ND-100  
 036 Micro program 2 K prom ND-100  
 117 MOS memory 1/2 MB / 22 bit  
 271 Terminal interface, 4 lines for ND-100 Satellite



316 Floppy disk drive 5 1/4"  
 317 Controller for 5 1/4" Streamer and Floppy disk drive  
 631 Controller for ND 610 and ND 611 23 MB and 45 MB  
 Winchester disk  
 611 Disk drive, 45 MB, fixed, 5 1/4 " winchester  
 627 45 MB streaming tape drive for ND-100 Satellite  
 781 Cabinet, power and operator panel ND-100 Satellite Model  
 II  
 10044 Subsystem package - 48 bit format  
 10049 ND spooling system  
 10079 NOTIS-WP for ND-100  
 10315 Accounting system for SINTRAN-III E version or later  
 10336 Symbolic debugger for ND-100  
 10337 Back-up system for SINTRAN-III  
 10400 Subsystem package II, includes MAC, QED, NPL  
 10783 Sintran III for ND-100 Satellite modell II C  
 10628 Sintran III VSE/VSX utility programs  
 10634 Memory to floppy dump (MEMTOF-100)  
 10518 User-environment for ND-100  
 10534 Job Execution Control  
 10130 XMSG for Sintran-III (disc based)  
 10721 BRF-LINKER for ND-100

## 9830 ND-100 SATELLITE MODEL III A

Consisting of ND-numbers:

100 ND-100 CPU for ND-100 Satellite  
 031 Memory management, ND-100  
 036 Micro program 2 K prom ND-100  
 117 MOS memory 1/2 MB / 22 bit  
 272 Terminal interface, 8 lines for ND-100 Satellite  
 316 Floppy disk drive 5 1/4"  
 317 Controller for 5 1/4" Streamer and Floppy disk drive  
 631 Controller for ND 610 and ND 611 23 MB and 45 MB  
 Winchester disk  
 610 Disk drive, 23 MB fixed, 5 1/4 " winchester  
 782 Cabinet, power and operator panel for ND-100 Satellite  
 Model III  
 10044 Subsystem package - 48 bit format  
 10049 ND spooling system  
 10079 NOTIS-WP for ND-100  
 10315 Accounting system for SINTRAN-III E version or later  
 10336 Symbolic debugger for ND-100  
 10337 Back-up system for SINTRAN-III  
 10400 Subsystem package II, includes MAC, QED, NPL  
 10784 Sintran III for ND-100 Satellite modell III A  
 10628 Sintran III VSE/VSX utility programs  
 10634 Memory to floppy dump (MEMTOF-100)  
 10518 User-environment for ND-100  
 10534 Job Execution Control  
 10130 XMSG for Sintran-III (disc based)  
 10721 BRF-LINKER for ND-100

## 9831 ND-100 SATELLITE MODEL III B

## Consisting of ND-numbers:

100 ND-100 CPU for ND-100 Satellite  
 031 Memory management, ND-100  
 036 Micro program 2 K prom ND-100  
 117 MOS memory 1/2 MB / 22 bit  
 272 Terminal interface, 8 lines for ND-100 Satellite  
 316 Floppy disk drive 5 1/4"  
 317 Controller for 5 1/4" Streamer and Floppy disk drive  
 631 Controller for ND 610 and ND 611 23 MB and 45 MB  
 Winchester disk  
 611 Disk drive, 45 MB, fixed, 5 1/4 " winchester  
 627 45 MB streaming tape drive for ND-100 Satellite  
 782 Cabinet, power and operator panel for ND-100 Satellite  
 Model III  
 10044 Subsystem package - 48 bit format  
 10049 ND spooling system  
 10079 NOTIS-WP for ND-100  
 10315 Accounting system for SINTRAN-III E version or later  
 10336 Symbolic debugger for ND-100  
 10337 Back-up system for SINTRAN-III  
 10400 Subsystem package II, includes MAC, QED, NPL  
 10785 Sintran III for ND-100 Satellite modell III B  
 10628 Sintran III VSE/VSX utility programs  
 10634 Memory to floppy dump (MEMTOF-100)  
 10518 User-environment for ND-100  
 10534 Job Execution Control  
 10130 XMSG for Sintran-III (disc based)  
 10721 BRP-LINKER for ND-100

## 9550 ND-100 SATELLITE/3

## Consisting of ND-numbers:

100 ND-100 standard CPU  
 031 Memory management system  
 036 Standard prom  
 057 Satellite Operator's Panel  
 091 Satellite CPU rack, 8 positions  
 889 Satellite power supply  
 090 Satellite cabinet  
 367 Floppy disk controller and formatter  
 312 Floppy disk drive, 1.2 MB  
 271 Terminal interface, 4 lines  
 565 Disk controller for 8" winchester disk  
 592 Disk drive, 14 MB 8" fixed winchester  
 116 MOS memory, 1/4 MB  
 10406 SINTRAN-III for ND-100 Satellite/3  
 10079 NOTIS - Word Processing system  
 10628 SINTRAN-III VSE/VSX Utility Programs  
 10049 ND Spooling System  
 10044 Subsystem Package - 48 bit format  
 10315 Accounting system for SINTRAN-III  
 10336 Symbolic Debugger for ND-100  
 10337 Backup system for SINTRAN-III

10400 Subsystem Package II  
10534 Job Execution Control  
10634 Memory to Floppy Dump Program  
10518 USER-ENVIRONMENT for ND-100  
10130 XMSG for SINTRAN-III (disc based)  
10721 BRF-LINKER for ND-100

## 9500 ND-100 SATELLITE/5

Consisting of ND-numbers:

100 ND-100 standard CPU  
031 Memory management system  
036 Standard prom  
057 Satellite Operator's Panel  
091 Satellite CPU rack, 8 positions  
889 Satellite power supply  
090 Satellite cabinet  
367 Floppy disk controller and formatter  
312 Floppy disk drive, 1.2 MB  
271 Terminal interface, 4 lines  
565 Disk controller for 8" winchester disk  
592 Disk drive, 14 MB 8" fixed winchester  
117 MOS memory, 1/2 MB  
10406 SINTRAN-III for ND-100 Satellite/5  
10079 NOTIS - Word Processing system  
10628 SINTRAN-III VSE/VSX Utility Programs  
10044 Subsystem Package - 48 bit format  
10049 ND Spooling System  
10315 Accounting system for SINTRAN-III  
10336 Symbolic Debugger for ND-100  
10337 Backup system for SINTRAN-III  
10400 Subsystem Package II  
10534 Job Execution Control  
10634 Memory to Floppy Dump Program  
10518 USER-ENVIRONMENT for ND-100  
10130 XMSG for SINTRAN-III (disc based)  
10721 BRF-LINKER for ND-100

## 9510 ND-100 SATELLITE/9

Consisting of ND-numbers:

100 ND-100 standard CPU  
031 Memory management system  
036 Standard prom  
057 Satellite Operator's Panel  
091 Satellite CPU rack, 8 positions  
889 Satellite power supply  
090 Satellite cabinet  
367 Floppy disk controller and formatter  
312 Floppy disk drive, 1.2 MB  
272 Terminal interface, 8 lines  
565 Disk controller for 8" winchester disk

593 Disk drive, 22 MB 8" fixed winchester  
 117 MOS memory, 1/2 MB  
 10407 SINTRAN-III for ND-100 Satellite/9  
 10079 NOTIS - Word Processing system  
 10628 SINTRAN-III VSE/VSX Utility Programs  
 10044 Subsystem Package - 48 bit format  
 10049 ND Spooling System  
 10315 Accounting system for SINTRAN-III  
 10336 Symbolic Debugger for ND-100  
 10337 Backup system for SINTRAN-III  
 10400 Subsystem Package II  
 10534 Job Execution Control  
 10634 Memory to Floppy Dump Program  
 10518 USER-ENVIRONMENT for ND-100  
 10130 XMSG for SINTRAN-III (disc based)  
 10721 BRF-LINKER for ND-100

## 9520 ND-100 SATELLITE/5

Consisting of ND-numbers:

100 ND-100 standard CPU  
 031 Memory management system  
 036 Standard prom  
 057 Satellite Operator's Panel  
 091 Satellite CPU rack, 8 positions  
 889 Satellite power supply  
 090 Satellite cabinet  
 367 Floppy disk controller and formatter  
 312 Floppy disk drive, 1.2 MB  
 271 Terminal interface, 4 lines  
 565 Disk controller for 8" winchester disk  
 592 Disk drive, 14 MB 8" fixed winchester  
 117 MOS memory, 1/2 MB  
 2 x 246 NOTIS Display Terminal - TDV 2200/9  
 10406 SINTRAN-III for ND-100 Satellite/5  
 10079 NOTIS - Word Processing system  
 10628 SINTRAN-III VSE/VSX Utility Programs  
 10044 Subsystem Package - 48 bit format  
 10049 ND Spooling System  
 10315 Accounting system for SINTRAN-III  
 10336 Symbolic Debugger for ND-100  
 10337 Backup system for SINTRAN-III  
 10400 Subsystem Package II  
 10534 Job Execution Control  
 10634 Memory to Floppy Dump Program  
 10518 USER-ENVIRONMENT for ND-100  
 10130 XMSG for SINTRAN-III (disc based)  
 10721 BRF-LINKER for ND-100

## 9530 ND-100 SATELLITE/9

Consisting of ND-numbers:

100 ND-100 standard CPU  
 031 Memory management system  
 036 Standard prom  
 057 Satellite Operator's Panel  
 091 Satellite CPU rack, 8 positions  
 889 Satellite power supply  
 090 Satellite cabinet  
 367 Floppy disk controller and formatter  
 312 Floppy disk drive, 1.2 MB  
 272 Terminal interface, 8 lines  
 565 Disk controller for 8" winchester disk  
 593 Disk drive, 22 MB 8" fixed winchester  
 117 MOS memory, 1/2 MB  
 2 x 246 NOTIS Display Terminal - TDV 2200/9  
 10407 SINTRAN-III for ND-100 Satellite/9  
 10079 NOTIS - Word Processing system  
 10628 SINTRAN-III VSE/VSX Utility Programs  
 10044 Subsystem Package - 48 bit format  
 10049 ND Spooling System  
 10315 Accounting system for SINTRAN-III  
 10336 Symbolic Debugger for ND-100  
 10337 Backup system for SINTRAN-III  
 10400 Subsystem Package II  
 10534 Job Execution Control  
 10634 Memory to Floppy Dump Program  
 10518 USER-ENVIRONMENT for ND-100  
 10130 XMSG for SINTRAN-III (disc based)  
 10721 BRF-LINKER for ND-100

### 3 ND-100 COMPACT

3240 ND-100/COMPACT, 1/4 MB Memory

Consisting of ND-numbers:

100 ND-100 standard CPU  
 031 Memory management system  
 036 Standard prom  
 057 Satellite Operator's Panel  
 091 Satellite CPU rack, 8 positions  
 889 Satellite power supply  
 090 Satellite cabinet (with extended plug-panel)  
 367 Floppy disk controller and formatter  
 312 Floppy disk drive, 1.2 MB  
 565 Disk controller for 8" winchester disk  
 593 Disk drive, 22 MB 8" fixed winchester  
 116 MOS memory, 1/4 MB  
 10174 SINTRAN-III/VSE Operating System  
 10049 ND Spooling system  
 10628 SINTRAN-III VSE/VSX Utility Programs  
 10044 Subsystem Package - 48 bit format  
 10315 Accounting system for SINTRAN-III

10337 Backup system for SINTRAN-III  
 10336 Symbolic debugger for ND-100  
 10400 Subsystem Package II  
 10534 Job Execution Control  
 10634 Memory to Floppy Dump Program  
 10518 USER-ENVIRONMENT for ND-100  
 10130 XMSG for SINTRAN-III (disc based)  
 10721 BRF-LINKER for ND-100

## 3241 ND-100/COMPACT, 1/2 MB Memory

Consisting of ND-numbers:

100 ND-100 standard CPU  
 031 Memory management system  
 036 Standard prom  
 057 Satellite Operator's Panel  
 091 Satellite CPU rack, 8 positions  
 889 Satellite power supply  
 090 Satellite cabinet (with extended plug-panel)  
 367 Floppy disk controller and formatter  
 312 Floppy disk drive, 1.2 MB  
 565 Disk controller for 8" winchester disk  
 593 Disk drive, 22 MB 8" fixed winchester  
 117 MCS memory, 1/2 MB  
 10174 SINTRAN-III/VSE Operating System  
 10049 ND Spooling system  
 10628 SINTRAN-III VSE/VSX Utility Programs  
 10044 Subsystem Package - 48 bit format  
 10315 Accounting system for SINTRAN-III  
 10337 Backup system for SINTRAN-III  
 10336 Symbolic debugger for ND-100  
 10400 Subsystem Package II  
 10534 Job Execution Control  
 10634 Memory to Floppy Dump Program  
 10518 USER-ENVIRONMENT for ND-100  
 10130 XMSG for SINTRAN-III (disc based)  
 10721 BRF-LINKER for ND-100

## 3260 ND-100 COMPACT MODEL I

Consisting of ND-numbers:

100 ND-100 standard CPU  
 031 Memory management system  
 036 Standard prom  
 093 ND-100 Compact CPU rack and power  
 092 ND-100 Compact cabinet  
 630 Controller for streamer and floppy disc  
 312 Floppy disk drive, 1.2 MB  
 631 Disk controller for fixed (winchester) disc  
 610 Disk drive, 23 MB fixed (winchester)  
 117 MCS memory, 1/2 MB  
 10174 SINTRAN-III/VSE Operating System

10049 ND Spooling system  
 10628 SINTRAN-III VSE/VSX Utility Programs  
 10044 Subsystem Package - 48 bit format  
 10315 Accounting system for SINTRAN-III  
 10337 Backup system for SINTRAN-III  
 10336 Symbolic debugger for ND-100  
 10400 Subsystem Package II  
 10534 Job Execution Control  
 10634 Memory to Floppy Dump Program  
 10518 USER-ENVIRONMENT for ND-100  
 10130 XMSG for SINTRAN-III (disc based)  
 10721 BRF-LINKER for ND-100

### 3261 ND-100 COMPACT MODEL II

Consisting of ND-numbers:

100 ND-100 standard CPU  
 031 Memory management system  
 036 Standard prom  
 093 ND-100 Compact CPU rack and power  
 092 ND-100 Compact cabinet  
 630 Controller for streamer and floppy disc  
 312 Floppy disk drive, 1.2 MB  
 631 Disk controller for fixed (winchester) disc  
 611 Disk drive, 45 MB fixed (winchester)  
 620 Streaming tape, 45 MB  
 117 MOS memory, 1/2 MB  
 10174 SINTRAN-III/VSE Operating System  
 10049 ND Spooling system  
 10628 SINTRAN-III VSE/VSX Utility Programs  
 10044 Subsystem Package - 48 bit format  
 10315 Accounting system for SINTRAN-III  
 10337 Backup system for SINTRAN-III  
 10336 Symbolic debugger for ND-100  
 10400 Subsystem Package II  
 10534 Job Execution Control  
 10634 Memory to Floppy Dump Program  
 10518 USER-ENVIRONMENT for ND-100  
 10130 XMSG for SINTRAN-III (disc based)  
 10721 BRF-LINKER for ND-100

### 3262 ND-100 COMPACT MODEL III

Consisting of ND-numbers:

100 ND-100 standard CPU  
 031 Memory management system  
 036 Standard prom  
 093 ND-100 Compact CPU rack and power  
 092 ND-100 Compact cabinet  
 630 Controller for streamer and floppy disc  
 312 Floppy disk drive, 1.2 MB  
 631 Disk controller for fixed (winchester) disc

2 x 611 Disk drive, 45 MB fixed (winchester)  
     620 Streaming tape, 45 MB  
     117 MOS memory, 1/2 MB  
 10174 SINTRAN-III/VSE Operating System  
 10049 ND Spooling system  
 10628 SINTRAN-III VSE/VSX Utility Programs  
 10044 Subsystem Package - 48 bit format  
 10315 Accounting system for SINTRAN-III  
 10337 Backup system for SINTRAN-III  
 10336 Symbolic debugger for ND-100  
 10400 Subsystem Package II  
 10534 Job Execution Control  
 10634 Memory to Floppy Dump Program  
 10518 USER-ENVIRONMENT for ND-100  
 10130 XMSG for SINTRAN-III (disc based)  
 10721 BRF-LINKER for ND-100

## 3263 ND-100 COMPACT MODEL IV

Consisting of ND-numbers:

100 ND-100 standard CPU  
 031 Memory management system  
 036 Standard prom  
 093 ND-100 Compact CPU rack and power  
 092 ND-100 Compact cabinet  
 630 Controller for streamer and floppy disc  
 312 Floppy disk drive, 1.2 MB  
 559 Disc controller, ECC, ND-100  
 117 MOS memory, 1/2 MB  
 10174 SINTRAN-III/VSE Operating System  
 10049 ND Spooling system  
 10628 SINTRAN-III VSE/VSX Utility Programs  
 10044 Subsystem Package - 48 bit format  
 10315 Accounting system for SINTRAN-III  
 10337 Backup system for SINTRAN-III  
 10336 Symbolic debugger for ND-100  
 10400 Subsystem Package II  
 10534 Job Execution Control  
 10634 Memory to Floppy Dump Program  
 10518 USER-ENVIRONMENT for ND-100  
 10130 XMSG for SINTRAN-III (disc based)  
 10721 BRF-LINKER for ND-100

3001 Upgrading ND-100 Compact Model I to Model II

3002 Upgrading ND-100 Compact Model II to Model III

3003 Upgrading ND-100 Compact Model III to Model IV



3004 Upgrading ND-100 Compact Model I to Model III

3005 Upgrading ND-100 Compact Model II to Model IV

#### 4 ND-100 OEM

3010 ND-142 OEM-1 System

Consisting of ND-numbers:

100 ND-100 Standard CPU  
036 Standard prom  
091 8 position rack  
115 MOS memory 128 KB  
10324 Test programs no. 1  
10325 Test programs no. 2

3011 ND-142 OEM-2 System

Consisting of ND-numbers:

100 ND-100 Standard CPU  
036 Standard prom  
091 8 position rack  
031 Memory management system  
116 MOS memory 1/4 MB  
271 Terminal interface, 4 lines  
180 Bus driver ND-100  
10324 Test programs no. 1  
10325 Test programs no. 2

#### 5 ND-100

3302 ND-100 expansion system

Consisting of ND-numbers:

49 Expansion rack and power supply, ND-100  
109 Bus expander, ND-100  
178 ND-100 cabinet, 6 modules tall

6 ND-100/CX

3304 ND-100/CX and ND-100/CE expansion system

Consisting of ND-numbers:

- 56 ND-100 expansion rack, 20 positions
- 109 Bus expander, ND-100

3720X ND-100/CX

Consisting of ND-numbers:

- 100 ND-100 Standard CPU
- 081 ND-100/CX option, 48 bit format
- 032 Memory Management System with Cache
- 117 MOS memory 1/2 MB
- 033 Operator's Panel
- 034 Display Panel
- 055 ND-100 CPU rack, 20 positions
- 230X Printer Terminal, 75 cps
- 367 Floppy Disk Controller and formatter
- 312 Floppy disk drive, 1.2 MB
- 368 Floppy Disk Housing, max 2 drives
- 559 Disk Controller, ECC, ND-100
- 132 ND-100/ND-500 cabinet, 11 modules tall
- 881 Power supply, 150A/5V
- 882 Standby power 25A/5V, 4A/12V
- 10575 SINTRAN-III/VSX Operating System
- 10315 Accounting system for SINTRAN-III
- 10337 Backup system for SINTRAN-III
- 10049 ND Spooling System
- 10628 SINTRAN-III VSE/VSX Utility Programs
- 10044 Subsystem Package - 48 bit format
- 10336 Symbolic debugger for ND-100
- 10400 Subsystem Package II
- 10534 Job Execution Control
- 10634 Memory to Floppy Dump Program
- 10518 USER-ENVIRONMENT for ND-100
- 10130 XMSG for SINTRAN-III (disc based)
- 10721 BRFLINKER for ND-100

7 ND-500

5008 ND-500 MEMORY AND I/O EXPANSION SYSTEM

## Consisting of ND-numbers:

132 ND-100/ND-500 Cabinet, 11 modules tall  
 882 Standby power, 25A/5V, 4A/12V  
 883 Power supply, 220A/5V  
 392 Multiport memory system IV, rack with 2 banks  
 56 ND-100 expansion rack, 20 positions  
 109 Bus ekspander, ND-100

## 5010 ND-550/CX TO ND-560/CXA UPGRADING

## Consisting of ND-numbers:

62 Cache memory, 32 KB, ND-500  
 10338 ND-500 Microcode for Array Processing Functions

## 5011 ND-520 TO ND-540 UPGRADING

## Consisting of ND-numbers:

62 Cache memory, 32 KB, ND-500

## 5020 ND-560/CXA TO ND-570/CXA UPGRADING

## Consisting of ND-numbers:

77 ND-500/2 basic CPU module  
 79 Cache control module, ND-500/2  
 86 Cache memory, 32 KB, ND-500/2  
 78 Memory management, ND-500/2  
 76 ND-500/2 rack  
 073 BCD-arithmetic for ND-500  
 388 Multiport Driver for MPM V, placed in ND-100 rack  
 380 Multiport memory system V, 26 pos. rack with 2 banks  
 381 Multiport memory system V controller  
 3 x 383 Multiport memory system V, 32 bit port  
 2 x 382 MOS memory 1 MB  
 881 Power supply, 150A/5V  
 882 Standby power, 25A/5V, 4A/12V  
 883 Power supply, 220A/5V  
 132 ND-100/ND-500 Cabinet

## 5030 UPGRADING ND-100/CX TO ND-530/CX MODEL II

## Consisting of ND-numbers:

374 ND-500/2 CPU with 500/1 arithmetic  
 078 Memory management, ND-500/2  
 2 x 378 Memory channel control for ND 530,550,560

- 2 x 379 Memory channel driver ND-500/2
  - 073 ND-500/CX option
  - 076 ND-500/2 rack for ND-530
  - 082 ND-100 CX Option, 32 bit format
  - 388 Multiport memory system V driver from ND-100
  - 065 ND-100 / ND-500 interface
  - 382 MOS memory 1 MB for MPM V Multiport memory system V
  - 380 Multiport Memory system V, Crate with two banks, 2 x 12 pos.
    - 381 Multiport memory system V, controller
- 3 x 383 Multiport Memory system V, 32 bit port
  - 132 ND-500 Cabinet, 11 modules tall
  - 882 Standby power 25A/5V, 4A/12V
- 2 x 883 Power supply 220A/5V
  - 10576 SINTRAN-III/VSX Operating system for ND-500
  - 10335 Symbolic debugger for ND-500
  - 10333 ND-500 monitor
  - 10319 Linkage loader for ND-500
  - 10521 Test program
  - 10787 ND-500/2 CX micro program (without AX)
  - 10005 Subsystem package - 32 bit format.
  - 10511 Exception handling system
  - 10721 BRF-LINKER for ND-100

## 5050 UPGRADING ND-100/CX TO ND-550/CX MODEL II

Consisting of ND-numbers:

- 077 ND-500/2 Basic CPU module
- 078 Memory management, ND-500/2
- 2 x 378 Memory channel control for ND 530,550,560
- 2 x 379 Memory channel driver ND-500/2
  - 076 ND-500/2 rack for ND-550
  - 073 ND-500/CX option
  - 082 ND-100 CX Option, 32 bit format
  - 388 Multiport memory system V driver from ND-100
  - 065 ND-100 / ND-500 interface
  - 380 Multiport Memory system V, Crate with two banks, 2 x 12 pos.
    - 382 MOS memory 1 MB for MPM V Multiport memory system V
    - 381 Multiport memory system V, controller
- 3 x 383 Multiport Memory system V, 32 bit port
  - 132 ND-500 Cabinet, 11 modules tall
  - 882 Standby power 25A/5V, 4A/12V
- 2 x 883 Power supply 220A/5V
  - 10576 SINTRAN-III/VSX Operating system for ND-500
  - 10335 Symbolic debugger for ND-500
  - 10333 ND-500 monitor
  - 10319 Linkage loader for ND-500
  - 10338 ND-500 AX Option, Array processing instruction set
  - 10521 Test program
  - 10786 ND-500/2 CXA micro program with double precision AX
  - 10005 Subsystem package - 32 bit format.
  - 10511 Exception handling system
  - 10721 BRF-LINKER for ND-100

## 5051 UPGRADING ND-530/CX MODEL I TO ND-550/CX MODEL I

Consisting of ND-numbers:

077 ND-500/2 Basic CPU module  
 385 ND-550/2 Rack with 1 MPM V bank  
 10338 ND-500 AX Option, Array processing instruction set  
 10786 ND-500/2 CXA micro program with double precision AX

## 5052 UPGRADING ND-530/CX MODEL II TO ND-550/CX MODEL II

Consisting of ND-numbers:

077 ND-500/2 Basic CPU module  
 076 ND-500/2 rack for ND-550  
 10338 ND-500 AX Option, Array processing instruction set  
 10786 ND-500/2 CXA micro program with double precision AX

## 5053 UPGRADING ND-530/CX MODEL III TO ND-550/CX MODEL III

Consisting of ND-numbers:

077 ND-500/2 Basic CPU module  
 385 ND-550/2 Rack with 1 MPM V bank  
 10338 ND-500 AX Option, Array processing instruction set  
 10786 ND-500/2 CXA micro program with double precision AX

## 5060 UPGRADING ND-100/CX TO ND-560/CX MODEL II

Consisting of ND-numbers:

077 ND-500/2 Basic CPU module  
 078 Memory management, ND-500/2  
 378 Memory channel control for ND 530,550,560  
 379 Memory channel driver ND-500/2  
 376 Cache memory, 16 KB, ND-500/2  
 377 Cache control for 16 KB, ND-500/2  
 385 ND-560/2 Rack with 1 MPM V bank  
 073 ND-500/CX option  
 076 ND-500/2 rack for ND-560  
 082 ND-100 CX Option, 32 bit format  
 388 Multiport memory system V driver from ND-100  
 065 ND-100 / ND-500 interface  
 380 Multiport Memory system V, Crate with two banks, 2 x 12 pos.  
 2 x 382 MOS memory 1 MB for MPM V Multiport memory system V  
 381 Multiport memory system V, controller  
 3 x 383 Multiport Memory system V, 32 bit port  
 132 ND-500 Cabinet, 11 modules tall  
 882 Standby power 25A/5V, 4A/12V  
 2 x 883 Power supply 220A/5V

10576 SINTRAN-III/VSX Operating system for ND-500  
 10335 Symbolic debugger for ND-500  
 10333 ND-500 monitor  
 10319 Linkage loader for ND-500  
 10338 ND-500 AX Option, Array processing instruction set  
 10521 Test program  
 10786 ND-500/2 CXA micro program with double precision AX  
 10005 Subsystem package - 32 bit format.  
 10511 Exception handling system

## 5062 UPGRADING ND-550/CX MODEL I TO ND-560/CX MODEL I

Consisting of ND-numbers:

376 Cache memory, 16 KB, ND-500/2  
 377 Cache control for 16 KB, ND-500/2  
 385 ND-560/2 Rack with 1 MPM V bank  
 382 MOS memory 1 MB for MPM V Multiport memory system V

## 5064 UPGRADING ND-550/CX MODEL II TO ND-560/CX MODEL II

Consisting of ND-numbers:

376 Cache memory, 16 KB, ND-500/2  
 377 Cache control for 16 KB, ND-500/2  
 385 ND-560/2 Rack with 1 MPM V bank  
 076 ND-500/2 rack for ND-560

## 5070 UPGRADING ND-100/CX TO ND-570/CX MODEL II

Consisting of ND-numbers:

077 ND-500/2 Basic CPU module  
 078 Memory management, ND-500/2  
 079 Cache control, ND-500/2  
 086 Cache memory, 32 KB, ND-500/2  
 073 ND-500/CX option  
 076 ND-500/2 rack for ND-570  
 082 ND-100 CX Option, 32 bit format  
 388 Multiport memory system V driver from ND-100  
 065 ND-100 / ND-500 interface  
 380 Multiport Memory system V, Crate with two banks, 2 x 12 pos.  
 2 x 382 MOS memory 1 MB for MPM V Multiport memory system V  
 381 Multiport memory system V, controller  
 3 x 383 Multiport Memory system V, 32 bit port  
 132 ND-500 Cabinet, 11 modules tall  
 882 Standby power 25A/5V, 4A/12V  
 2 x 883 Power supply 220A/5V  
 10576 SINTRAN-III/VSX Operating system for ND-500  
 10335 Symbolic debugger for ND-500  
 10333 ND-500 monitor

10319 Linkage loader for ND-500  
10786 ND-500/2 CXA micro program with double precision AX  
10521 Test program  
10005 Subsystem package - 32 bit format.  
10511 Exception handling system

5073 UPGRADING ND-560/CX MODEL I TO ND-570/CX MODEL I

Consisting of ND-numbers:

079 Cache control, ND-500/2  
086 Cache memory, 32 KB, ND-500/2  
385 ND-500/2 rack with 1 MPM V bank

5076 UPGRADING ND-560/CX MODEL II TO ND-570/CX MODEL II

Consisting of ND-numbers:

079 Cache control, ND-500/2  
086 Cache memory, 32 KB, ND-500/2  
076 ND-500/2 rack for ND-570

5080 ADDITIONAL I/O DMA CHANNEL FOR MODEL II

5081 SECOND ADDITIONAL I/O DMA CHANNEL FOR MODEL II

5082 MEMORY EXPANSION SYSTEM FOR 500/CX-SERIES, CABINET INCLUDED

5083 I/O EXPANSION SYSTEM FOR 500/CX-SERIES, CABINET INCLUDED

5084 MEMORY AND I/O EXPANSION SYSTEM FOR 500/CX-SERIES, CABINET INCLUDED

5331 ND-530/CX MODEL I

Consisting of ND-numbers:

374 ND-500/2 CPU with 500/1 arithmetic  
078 Memory management, ND-500/2  
2 x 378 Memory channel control for ND 530,550,560  
2 x 379 Memory channel driver ND-500/2  
385 ND-530/2 Rack with 1 MPM V bank

073 ND-500/CX option  
 100 ND-100 standard CPU  
 082 ND-100 CX Option, 32 bit format  
 032 Memory management system and cache memory, ND-100  
 033 Operators panel, ND-100  
 034 Display panel, ND-100  
 055 ND-100 CPU rack, 20 positions  
 388 Multiport memory system V driver from ND-100  
 065 ND-100 / ND-500 interface  
 117 MCS memory 1/2 MB / 22 bit  
 382 MCS memory 1 MB for Multiport memory system V  
 381 Multiport memory system V, controller  
 3 x 383 Multiport Memory system V, 32 bit port  
 230X Printer terminal OMNI 820 KSR  
 312 Floppy disk drive, double density, dual sided  
 367 Floppy disk controller and formatter for ND 310 and ND 312  
 368 Floppy disk housing for ND 312, max 2 drives  
 559 Disk controller, ECC, ND-100  
 132 ND-500 Cabinet, 11 modules  
 881 Power supply 150A/5V  
 882 Standby power 25A/5V, 4A/12V  
 883 Power supply 220A/5V  
 10576 SINTRAN-III Operating system for ND-500  
 10049 ND spooling system  
 10335 Symbolic debugger for ND-500  
 10333 ND-500 monitor  
 10319 Linkage loader for ND-500  
 10315 Accounting system for SINTRAN-III E version or later  
 10337 Back-up system for SINTRAN-III  
 10521 Test program  
 10787 Microcode for ND-530/CX  
 10628 SINTRAN-III VSE/VSX utility programs  
 10005 Subsystem package - 32 bit format.  
 10400 Subsystem package II, includes MAC, QED, NPL  
 10511 Exception handling system  
 10534 Job Execution Control  
 10634 Memory to floppy dump (MEMTOF-100)  
 10518 USER-ENVIRONMENT for ND-100  
 10130 Xmessage for SINTRAN-III (disc based)  
 10721 BRFLINKER for ND-100

## 5332 ND-530/CX MODEL II

Consisting of ND-numbers:

374 ND-500/2 CPU with 500/1 arithmetic  
 078 Memory management, ND-500/2  
 2 x 378 Memory channel control for ND 530,550,560  
 2 x 379 Memory channel driver ND-500/2  
 073 ND-500/CX option  
 076 ND-500/2 rack for ND-530  
 100 ND-100 standard CPU  
 082 ND-100 CX Option, 32 bit format  
 032 Memory management system and cache memory, ND-100  
 033 Operators panel, ND-100



034 Display panel, ND-100  
 055 ND-100 CPU rack, 20 positions  
 388 Multiport memory system V driver from ND-100  
 065 ND-100 / ND-500 interface  
 117 MOS memory 1/2 MB / 22 bit  
 382 MOS memory 1 MB for Multiport memory system V  
 380 Multiport Memory system V, Crate with two banks, 2 x 12 pos.  
 381 Multiport memory system V, controller  
 3 x 383 Multiport Memory system V, 32 bit port  
 230X Printer terminal OMNI 820 KSR  
 312 Floppy disk drive, double density, dual sided  
 367 Floppy disk controller and formatter for ND 310 and ND 312  
 368 Floppy disk housing for ND 312, max 2 drives  
 559 Disk controller, ECC, ND-100  
 2 x 132 ND-100 / ND-500 cabinet, 11 modules  
 881 Power supply 150A/5V  
 2 x 882 Standby power 25A/5V, 4A/12V  
 2 x 883 Power supply 220A/5V  
 10576 SINTRAN-III Operating system for ND-500  
 10049 ND spooling system  
 10335 Symbolic debugger for ND-500  
 10333 ND-500 monitor  
 10319 Linkage loader for ND-500  
 10315 Accounting system for SINTRAN-III E version or later  
 10337 Back-up system for SINTRAN-III  
 10521 Test program  
 10787 Microcode for ND-530/CX  
 10628 SINTRAN-III VSE/VSX utility programs  
 10005 Subsystem package - 32 bit format.  
 10400 Subsystem package II, includes MAC, QED, NPL  
 10511 Exception handling system  
 10534 Job Execution Control  
 10634 Memory to floppy dump (MEMTOF-100)  
 10518 USER-ENVIRONMENT for ND-100  
 10130 Xmessage for SINTRAN-III (disc based)  
 10721 BRFLINKER for ND-100

## 5333 ND-530/CX MODEL III

Consisting of ND-numbers:

374 ND-500/2 CPU with 500/1 arithmetic  
 078 Memory management, ND-500/2  
 2 x 378 Memory channel control for ND 530,550,560  
 2 x 379 Memory channel driver ND-500/2  
 385 ND-530/2 Rack with 1 MPM V bank  
 073 ND-500/CX option  
 100 ND-100 standard CPU  
 082 ND-100 CX Option, 32 bit format  
 032 Memory management system and cache memory, ND-100  
 033 Operators panel, ND-100  
 034 Display panel, ND-100  
 055 ND-100 CPU rack, 20 positions  
 388 Multiport memory system V driver from ND-100

065 ND-100 / ND-500 interface  
 117 MOS memory 1/2 MB / 22 bit  
 382 MOS memory 1 MB for Multiport memory system V  
 381 Multiport memory system V, controller  
 3 x 383 Multiport Memory system V, 32 bit port  
 230X Printer terminal OMNI 820 KSR  
 312 Floppy disk drive, double density, dual sided  
 630 Controller for streaming tape and Floppy disk, ND 620  
 and ND 312  
 368 Floppy disk housing for ND 312, max 2 drives  
 636 Disk controller ECC, single drive for ND-500/2 model III  
 620 45 MB streaming tape  
 613 Fixed disk drive 140 MB  
 132 ND-500 Cabinet, 11 modules  
 881 Power supply 150A/5V  
 882 Standby power 25A/5V, 4A/12V  
 883 Power supply 220A/5V  
 10576 SINTRAN-III Operating system for ND-500  
 10049 ND spooling system  
 10335 Symbolic debugger for ND-500  
 10333 ND-500 monitor  
 10319 Linkage loader for ND-500  
 10315 Accounting system for SINTRAN-III E version or later  
 10337 Back-up system for SINTRAN-III  
 10787 Microcode for ND-530/CX  
 10521 Test program  
 10628 SINTRAN-III VSE/VSX utility programs  
 10005 Subsystem package - 32 bit format.  
 10400 Subsystem package II, includes MAC, QED, NPL  
 10511 Exception handling system  
 10534 Job Execution Control  
 10634 Memory to floppy dump (MEMTOF-100)  
 10518 USER-ENVIRONMENT for ND-100  
 10130 Xmessage for SINTRAN-III (disc based)  
 10721 BRF-LINKER for ND-100

## 5531 ND-550/CX MODEL I

Consisting of ND-numbers:

077 ND-500/2 Basic CPU module  
 078 Memory management, ND-500/2  
 2 x 378 Memory channel control for ND 530,550,560  
 2 x 379 Memory channel driver ND-500/2  
 385 ND-550/2 Rack with 1 MPM V bank  
 073 ND-500/CX option  
 100 ND-100 standard CPU  
 082 ND-100 CX Option, 32 bit format  
 032 Memory management system and cache memory, ND-100  
 033 Operators panel, ND-100  
 034 Display panel, ND-100  
 055 ND-100 CPU rack, 20 positions  
 388 Multiport memory system V driver from ND-100  
 065 ND-100 / ND-500 interface  
 117 MOS memory 1/2 MB / 22 bit  
 382 MOS memory 1 MB for Multiport memory system V

381	Multiport memory system V, controller
3 x 383	Multiport Memory system V, 32 bit port
230X	Printer terminal OMNI 820 KSR
312	Floppy disk drive, double density, dual sided
367	Floppy disk controller and formatter for ND 310 and ND 312
368	Floppy disk housing for ND 312, max 2 drives
559	Disk controller, ECC, ND-100
132	ND-500 Cabinet, 11 modules
881	Power supply 150A/5V
882	Standby power 25A/5V, 4A/12V
883	Power supply 220A/5V
10576	SINTRAN-III Operating system for ND-500
10049	ND spooling system
10335	Symbolic debugger for ND-500
10333	ND-500 monitor
10319	Linkage loader for ND-500
10315	Accounting system for SINTRAN-III E version or later.
10337	Back-up system for SINTRAN-III
10338	ND-500 AX Option, Array processing instruction set
10521	Test program
10786	Microcode for ND-550/CX, ND-560/CX, ND-570/CX
10628	SINTRAN-III VSE/VSX utility programs
10005	Subsystem package - 32 bit format.
10400	Subsystem package II, includes MAC, QED, NPL
10511	Exception handling system
10534	Job Execution Control
10634	Memory to floppy dump (MEMTOF-100)
10518	USER-ENVIRONMENT for ND-100
10130	Xmessage for SINTRAN-III (disc based)
10721	BRF-LINKER for ND-100

## 5532 ND-550/CX MODEL II

Consisting of ND-numbers:

077	ND-500/2 Basic CPU module
078	Memory management, ND-500/2
2 x 378	Memory channel control for ND 530,550,560
2 x 379	Memory channel driver ND-500/2
076	ND-500/2 rack for ND-550
073	ND-500/CX option
100	ND-100 standard CPU
082	ND-100 CX Option, 32 bit format
032	Memory management system and cache memory, ND-100
033	Operators panel, ND-100
034	Display panel, ND-100
055	ND-100 CPU rack, 20 positions
388	Multiport memory system V driver from ND-100
065	ND-100 / ND-500 interface
117	MOS memory 1/2 MB / 22 bit
380	Multiport Memory system V, Crate with two banks, 2 x 12 pos.
382	MOS memory 1 MB for Multiport memory system V
381	Multiport memory system V, controller
3 x 383	Multiport Memory system V, 32 bit port

230X Printer terminal OMNI 820 KSR  
 312 Floppy disk drive, double density, dual sided  
 367 Floppy disk controller and formatter for ND 310 and ND 312  
 368 Floppy disk housing for ND 312, max 2 drives  
 559 Disk controller, ECC, ND-100  
 2 x 132 ND-100 / ND-500 cabinet, 11 modules  
 881 Power supply 150A/5V  
 2 x 882 Standby power 25A/5V, 4A/12V  
 2 x 883 Power supply 220A/5V  
 10576 SINTRAN-III Operating system for ND-500  
 10049 ND spooling system  
 10335 Symbolic debugger for ND-500  
 10333 ND-500 monitor  
 10319 Linkage loader for ND-500  
 10315 Accounting system for SINTRAN-III E version or later  
 10337 Back-up system for SINTRAN-III  
 10338 ND-500 AX Option, Array processing instruction set  
 10521 Test program  
 10786 Microcode for ND-550/CX, ND-560/CX, ND-570/CX  
 10628 SINTRAN-III VSE/VSX utility programs  
 10005 Subsystem package - 32 bit format.  
 10400 Subsystem package II, includes MAC, QED, NPL  
 10511 Exception handling system  
 10534 Job Execution Control  
 10634 Memory to floppy dump (MEMTOF-100)  
 10518 USER-ENVIRONMENT for ND-100  
 10130 Xmessage for SINTRAN-III (disc based)  
 10721 BRP-LINKER for ND-100

## 5533 ND-550/CX MODEL III

Consisting of ND-numbers:

077 ND-500/2 Basic CPU module  
 078 Memory management, ND-500/2  
 2 x 378 Memory channel control for ND 530,550,560  
 2 x 379 Memory channel driver ND-500/2  
 385 ND-550/2 Rack with 1 MPM V bank  
 073 ND-500/CX option  
 100 ND-100 standard CPU  
 082 ND-100 CX Option, 32 bit format  
 032 Memory management system and cache memory, ND-100  
 033 Operators panel, ND-100  
 034 Display panel, ND-100  
 055 ND-100 CPU rack, 20 positions  
 388 Multiport memory system V driver from ND-100  
 065 ND-100 / ND-500 interface  
 117 MOS memory 1/2 MB / 22 bit  
 382 MOS memory 1 MB for Multiport memory system V  
 381 Multiport memory system V, controller  
 3 x 383 Multiport Memory system V, 32 bit port  
 230X Printer terminal OMNI 820 KSR  
 312 Floppy disk drive, double density, dual sided  
 630 Controller for streaming tape and Floppy disk, ND 620 and ND 312

620 45 MB streaming tape  
 613 Fixed disk drive 140 MB  
 368 Floppy disk housing for ND 312, max 2 drives  
 636 Disk controller ECC, single drive for ND-500/2 model III  
 132 ND-500 Cabinet, 11 modules  
 881 Power supply 150A/5V  
 882 Standby power 25A/5V, 4A/12V  
 883 Power supply 220A/5V  
 10576 SINTRAN-III Operating system for ND-500  
 10049 ND spooling system  
 10335 Symbolic debugger for ND-500  
 10333 ND-500 monitor  
 10319 Linkage loader for ND-500  
 10315 Accounting system for SINTRAN-III E version or later  
 10337 Back-up system for SINTRAN-III  
 10338 ND-500 AX Option, Array processing instruction set  
 10521 Test program  
 10786 Microcode for ND-550/CX, ND-560/CX, ND-570/CX  
 10628 SINTRAN-III VSE/VSX utility programs  
 10005 Subsystem package - 32 bit format.  
 10400 Subsystem package II, includes MAC, QED, NPL  
 10511 Exception handling system  
 10534 Job Execution Control  
 10634 Memory to floppy dump (MEMTOF-100)  
 10518 USER-ENVIRONMENT for ND-100  
 10130 Xmessage for SINTRAN-III (disc based)  
 10721 BRFLINKER for ND-100

#### 5631 ND-560/CX MODEL I

Consisting of ND-numbers:

077 ND-500/2 Basic CPU module  
 078 Memory management, ND-500/2  
 378 Memory channel control for ND 530,550,560  
 379 Memory channel driver ND-500/2  
 376 Cache memory, 16 KB, ND-500/2  
 377 Cache control for 16 KB, ND-500/2  
 385 ND-560/2 Rack with 1 MPM V bank  
 073 ND-500/CX option  
 100 ND-100 standard CPU  
 082 ND-100 CX Option, 32 bit format  
 032 Memory management system and cache memory, ND-100  
 033 Operators panel, ND-100  
 034 Display panel, ND-100  
 055 ND-100 CPU rack, 20 positions  
 388 Multiport memory system V driver from ND-100  
 065 ND-100 / ND-500 interface  
 117 MOS memory 1/2 MB / 22 bit  
 2 x 382 MOS memory 1 MB for Multiport memory system V  
 381 Multiport memory system V, controller  
 3 x 383 Multiport Memory system V, 32 bit port  
 230X Printer terminal OMNI 820 KSR  
 312 Floppy disk drive, double density, dual sided  
 367 Floppy disk controller and formatter for ND 310 and ND 312

368 Floppy disk housing for ND 312, max 2 drives  
 559 Disk controller, ECC, ND-100  
 132 ND-500 Cabinet, 11 modules  
 881 Power supply 150A/5V  
 882 Standby power 25A/5V, 4A/12V  
 883 Power supply 220A/5V  
 10576 SINTRAN-III Operating system for ND-500  
 10049 ND spooling system  
 10335 Symbolic debugger for ND-500  
 10333 ND-500 monitor  
 10319 Linkage loader for ND-500  
 10315 Accounting system for SINTRAN-III E version or later  
 10337 Back-up system for SINTRAN-III  
 10338 ND-500 AX Option, Array processing instruction set  
 10521 Test program  
 10786 Microcode for ND-550/CX, ND-560/CX, ND-570/CX  
 10628 SINTRAN-III VSE/VSX utility programs  
 10005 Subsystem package - 32 bit format.  
 10400 Subsystem package II, includes MAC, QED, NPL  
 10511 Exception handling system  
 10534 Job Execution Control  
 10634 Memory to floppy dump (MEMTOF-100)  
 10518 USER-ENVIRONMENT for ND-100  
 10130 Xmessage for SINTRAN-III (disc based)  
 10721 BRFLINKER for ND-100

## 5632 ND-560/CX MODEL II

Consisting of ND-numbers:

077 ND-500/2 Basic CPU module  
 078 Memory management, ND-500/2  
 378 Memory channel control for ND 530,550,560  
 379 Memory channel driver ND-500/2  
 376 Cache memory, 16 KB, ND-500/2  
 377 Cache control for 16 KB, ND-500/2  
 385 ND-560/2 Rack with 1 MPM V bank  
 073 ND-500/CX option  
 076 ND-500/2 rack for ND-560  
 100 ND-100 standard CPU  
 082 ND-100 CX Option, 32 bit format  
 032 Memory management system and cache memory, ND-100  
 033 Operators panel, ND-100  
 034 Display panel, ND-100  
 055 ND-100 CPU rack, 20 positions  
 388 Multiport memory system V driver from ND-100  
 065 ND-100 / ND-500 interface  
 117 MOS memory 1/2 MB / 22 bit  
 380 Multiport Memory system V, Crate with two banks, 2 x 12  
 pos.  
 2 x 382 MOS memory 1 MB for Multiport memory system V  
 381 Multiport memory system V, controller  
 3 x 383 Multiport Memory system V, 32 bit port  
 230X Printer terminal OMNI 820 KSR  
 312 Floppy disk drive, double density, dual sided  
 367 Floppy disk controller and formatter for ND 310 and ND  
 312

368 Floppy disk housing for ND 312, max 2 drives  
 559 Disk controller, ECC, ND-100  
 2 x 132 ND-100 / ND-500 cabinet, 11 modules  
 881 Power supply 150A/5V  
 2 x 882 Standby power 25A/5V, 4A/12V  
 2 x 883 Power supply 220A/5V  
 10576 SINTRAN-III Operating system for ND-500  
 10049 ND spooling system  
 10335 Symbolic debugger for ND-500  
 10333 ND-500 monitor  
 10319 Linkage loader for ND-500  
 10315 Accounting system for SINTRAN-III E version or later  
 10337 Back-up system for SINTRAN-III  
 10338 ND-500 AX Option, Array processing instruction set  
 10521 Test program  
 10786 Microcode for ND-550/CX, ND-560/CX, ND-570/CX  
 10628 SINTRAN-III VSE/VSX utility programs  
 10005 Subsystem package - 32 bit format.  
 10400 Subsystem package II, includes MAC, QED, NPL  
 10511 Exception handling system  
 10534 Job Execution Control  
 10634 Memory to floppy dump (MEMTOF-100)  
 10518 USER-ENVIRONMENT for ND-100  
 10130 Xmessage for SINTRAN-III (disc based)  
 10721 BRFLINKER for ND-100

## 5731 ND-570/CX Model I

Consisting of ND-numbers:

077 ND-500/2 Basic CPU module  
 078 Memory management, ND-500/2  
 079 Cache control, ND-500/2  
 086 Cache memory, 32 KB, ND-500/2  
 385 ND-500/2 rack with 1 MPM V bank  
 073 ND-500/CX option  
 100 ND-100 standard CPU  
 082 ND-100 CX Option, 32 bit format  
 032 Memory management system and cache memory, ND-100  
 033 Operators panel, ND-100  
 034 Display panel, ND-100  
 055 ND-100 CPU rack, 20 positions  
 388 Multiport memory system V driver from ND-100  
 065 ND-100 / ND-500 interface  
 117 MOS memory 1/2 MB / 22 bit  
 2 x 382 MOS memory 1 MB for Multiport memory system V  
 381 Multiport memory system V, controller  
 3 x 383 Multiport Memory system V, 32 bit port  
 230X Printer terminal OMNI 820 KSR  
 312 Floppy disk drive, double density, dual sided  
 367 Floppy disk controller and formatter for ND 310 and ND  
 312  
 368 Floppy disk housing for ND 312, max 2 drives  
 559 Disk controller, ECC, ND-100  
 132 ND-500 Cabinet, 11 modules  
 881 Power supply 150A/5V

882 Standby power 25A/5V, 4A/12V  
 883 Power supply 220A/5V  
 10576 SINTRAN-III Operating system for ND-500  
 10049 ND spooling system  
 10335 Symbolic debugger for ND-500  
 10333 ND-500 monitor  
 10319 Linkage loader for ND-500  
 10315 Accounting system for SINTRAN-III E version or later  
 10337 Back-up system for SINTRAN-III  
 10338 ND-500 AX Option, Array processing instruction set  
 10521 Test program  
 10786 Microcode for ND-550/CX, ND-560/CX, ND-570/CX  
 10628 SINTRAN-III VSE/VSX utility programs  
 10005 Subsystem package - 32 bit format.  
 10400 Subsystem package II, includes MAC, QED, NPL  
 10511 Exception handling system  
 10534 Job Execution Control  
 10634 Memory to floppy dump (MEMTOF-100)  
 10518 USER-ENVIRONMENT for ND-100  
 10130 Xmessage for SINTRAN-III (disc based)  
 10721 BRF-LINKER for ND-100

## 5732 ND-570/CX Model II

Consisting of ND-numbers:

077 ND-500/2 Basic CPU module  
 078 Memory management, ND-500/2  
 079 Cache control, ND-500/2  
 086 Cache memory, 32 KB, ND-500/2  
 073 ND-500/CX option  
 076 ND-500/2 rack for ND-570  
 100 ND-100 standard CPU  
 082 ND-100 CX Option, 32 bit format  
 032 Memory management system and cache memory, ND-100  
 033 Operators panel, ND-100  
 034 Display panel, ND-100  
 055 ND-100 CPU rack, 20 positions  
 388 Multiport memory system V driver from ND-100  
 065 ND-100 / ND-500 interface  
 117 MOS memory 1/2 MB / 22 bit  
 380 Multiport Memory system V, Crate with two banks, 2 x 12 pos.  
 2 x 382 MOS memory 1 MB for Multiport memory system V  
 381 Multiport memory system V, controller  
 3 x 383 Multiport Memory system V, 32 bit port  
 230X Printer terminal OMNI 820 KSR  
 312 Floppy disk drive, double density, dual sided  
 367 Floppy disk controller and formatter for ND 310 and ND 312  
 368 Floppy disk housing for ND 312, max 2 drives  
 559 Disk controller, ECC, ND-100  
 2 x 132 ND-100 / ND-500 cabinet, 11 modules  
 881 Power supply 150A/5V  
 2 x 882 Standby power 25A/5V, 4A/12V  
 2 x 883 Power supply 220A/5V



10576 SINTRAN-III Operating system for ND-500  
 10049 ND spooling system  
 10335 Symbolic debugger for ND-500  
 10333 ND-500 monitor  
 10319 Linkage loader for ND-500  
 10315 Accounting system for SINTRAN-III E version or later  
 10337 Back-up system for SINTRAN-III  
 10338 ND-500 AX Option, Array processing instruction set  
 10521 Test program  
 10786 Microcode for ND-550/CX, ND-560/CX, ND-570/CX  
 10628 SINTRAN-III VSE/VSX utility programs  
 10005 Subsystem package - 32 bit format.  
 10400 Subsystem package II, includes MAC, QED, NPL  
 10511 Exception handling system  
 10534 Job Execution Control  
 10634 Memory to floppy dump (MEMTOF-100)  
 10518 USER-ENVIRONMENT for ND-100  
 10130 Xmessage for SINTRAN-III (disc based)  
 10721 BRF-LINKER for ND-100

## 5220X ND-520

Consisting of ND-numbers:

60 ND-500 basic CPU module  
 61 Cache control module, ND-500  
 63 Memory management, ND-500  
 74 ND-500 CPU rack with 1 MPM IV bank  
 75 Cache adapter  
 100 ND-100 Standard CPU  
 082 ND-100/CX option, 32 bit format  
 032 Memory Management System (ND-100) with Cache  
 033 Operator's Panel  
 034 Display Panel  
 053 ND-100 CPU rack with 1 MPM IV bank  
 395 Multiport IV Driver  
 065 ND-100/ND-500 interface  
 2 x 390 Multiport memory system IV, bus controller  
 4 x 391 Multiport memory system IV, 16 bit port  
 397 MOS memory 1 MB  
 117 MOS memory 1/2 MB  
 881 Power supply, 150A/5V  
 883 Power supply, 220A/5V  
 882 Standby power, 25A/5V, 4A/12V  
 230X Printer Terminal, 75 cps  
 367 Floppy Disk Controller and formatter  
 312 Floppy disk drive, 1.2 MB  
 368 Floppy disk housing, max 2 drives  
 559 Disk Controller, ECC, ND-100  
 132 ND-100/ND-500 Cabinet  
 10576 SINTRAN-III/VSX-500 Operating System  
 10049 ND Spooling System  
 10335 Symbolic debugger for ND-500  
 10333 ND-500 monitor, multiuser  
 10319 Linkage-loader for ND-500  
 10315 Accounting system for SINTRAN-III

10337 Backup system for SINTRAN-III  
 10321 Testprogram for ND-500 microprogram  
 10332 ND-500 Microcode, multiuser  
 10628 SINTRAN-III VSE/VSX Utility Programs  
 10005 Subsystem Package - 32 bit format  
 10400 Subsystem Package II  
 10511 Exception Handling  
 10534 Job Execution Control  
 10634 Memory to Floppy Dump Program  
 10518 USER-ENVIRONMENT for ND-100  
 10130 XMSG for SINTRAN-III (disc based)  
 10721 BRFLINKER for ND-100

## 5420X ND-540

Consisting of ND-numbers:

60 ND-500 basic CPU module  
 61 Cache control module, ND-500  
 62 Cache memory, 32 KB, ND-500  
 63 Memory management, ND-500  
 74 ND-500 CPU rack with 1 MPM IV bank  
 100 ND-100 Standard CPU  
 082 ND-100/CX option, 32 bit format  
 032 Memory Management System (ND-100) with Cache  
 033 Operator's Panel  
 034 Display Panel  
 053 ND-100 CPU rack with 1 MPM IV bank  
 395 Multiport IV Driver  
 065 ND-100/ND-500 interface  
 2 x 390 Multiport memory system IV, bus controller  
 4 x 391 Multiport memory system IV, 16 bit port  
 397 MOS memory 1 MB  
 117 MOS memory 1/2 MB  
 881 Power supply, 150A/5V  
 883 Power supply, 220A/5V  
 882 Standby power, 25A/5V, 4A/12V  
 230X Printer Terminal, 75 cps  
 367 Floppy Disk Controller and formatter  
 312 Floppy disk drive, 1.2 MB  
 3b8 Floppy disk housing, max 2 drives  
 559 Disk Controller, ECC, ND-100  
 132 ND-100/ND-500 Cabinet  
 10576 SINTRAN-III/VSX-500 Operating System  
 10049 ND Spooling System  
 10335 Symbolic debugger for ND-500  
 10333 ND-500 monitor, multiuser  
 10319 Linkage-loader for ND-500  
 10315 Accounting system for SINTRAN-III  
 10337 Backup system for SINTRAN-III  
 10321 Testprogram for ND-500 microprogram  
 10332 ND-500 Microcode, multiuser  
 10628 SINTRAN-III VSE/VSX Utility Programs  
 10005 Subsystem Package - 32 bit format  
 10400 Subsystem Package II  
 10511 Exception Handling

10534 Job Execution Control  
 10634 Memory to Floppy Dump Program  
 10518 USER-ENVIRONMENT for ND-100  
 10130 XMSG for SINTRAN-III (disc based)  
 10721 BRF-LINKER for ND-100

## 5520X ND-550/CX SYSTEM

Consisting of ND-numbers:

60 ND-500 basic CPU module  
 61 Cache control module, ND-500  
 63 Memory management, ND-500  
 66 ND-500 rack  
 73 BCD-arithmetic for ND-500  
 75 Cache adapter  
 100 ND-100 Standard CPU  
 082 ND-100/CX option, 32 bit format  
 032 Memory Management System (ND-100) with Cache  
 033 Operator's Panel  
 034 Display Panel  
 055 ND-100 rack, 20 positions  
 395 Multiport IV Driver  
 065 ND-100/ND-500 interface  
 392 Multiport memory system IV, rack with 2 banks  
 2 x 390 Multiport memory system IV, bus controller  
 4 x 391 Multiport memory system IV, 16 bit port  
 398 MOS memory 2 MB  
 117 MOS memory 1/2 MB  
 4 x 881 Power supply, 150A/5V  
 2 x 882 Standby power, 25A/5V, 4A/12V  
 230X Printer Terminal, 75 cps  
 367 Floppy Disk Controller and formatter  
 312 Floppy disk drive, 1.2 MB  
 368 Floppy disk housing, max 2 drives  
 559 Disk Controller, ECC, ND-100  
 2 x 132 ND-100/ND-500 Cabinet  
 10576 SINTRAN-III/VSX-500 Operating System  
 10049 ND Spooling System  
 10335 Symbolic debugger for ND-500  
 10333 ND-500 monitor, multiuser  
 10319 Linkage-loader for ND-500  
 10315 Accounting system for SINTRAN-III  
 10337 Backup system for SINTRAN-III  
 10321 Testprogram for ND-500 microprogram  
 10332 ND-500 Microcode, multiuser  
 10628 SINTRAN-III VSE/VSX Utility Programs  
 10005 Subsystem Package - 32 bit format  
 10400 Subsystem Package II  
 10511 Exception Handling  
 10534 Job Execution Control  
 10634 Memory to Floppy Dump Program  
 10518 USER-ENVIRONMENT for ND-100  
 10130 XMSG for SINTRAN-III (disc based)  
 10721 BRF-LINKER for ND-100

## 5620X ND-560/CXA SYSTEM

Consisting of ND-numbers:

- 60 ND-500 basic CPU module
- 61 Cache control module, ND-500
- 62 Cache memory, 32 KB, ND-500
- 63 Memory management, ND-500
- 66 ND-500 rack
- 073 BCD-arithmetic for ND-500
- 100 ND-100 Standard CPU
- 082 ND-100/CX option, 32 bit format
- 032 Memory Management System (ND-100) with Cache
- 033 Operator's Panel
- 034 Display Panel
- 055 ND-100 rack, 20 positions
- 395 Multiport IV Driver
- 065 ND-100/ND-500 interface
- 392 Multiport memory system IV, rack with 2 banks
- 2 x 390 Multiport memory system IV, bus controller
- 4 x 391 Multiport memory system IV, 16 bit port
- 398 MOS memory 2 MB
- 117 MOS memory 1/2 MB
- 4 x 881 Power supply, 150A/5V
- 2 x 882 Standby power, 25A/5V, 4A/12V
- 230X Printer Terminal, 75 cps
- 367 Floppy Disk Controller and formatter
- 312 Floppy disk drive, 1.2 MB
- 368 Floppy disk housing, max 2 drives
- 559 Disk Controller, ECC, ND-100
- 2 x 132 ND-100/ND-500 Cabinet
- 10576 SINTRAN-III/VSX-500 Operating System
- 10049 ND Spooling System
- 10335 Symbolic debugger for ND-500
- 10333 ND-500 monitor, multiuser
- 10319 Linkage-loader for ND-500
- 10315 Accounting system for SINTRAN-III
- 10337 Backup system for SINTRAN-III
- 10338 Microcode for Array Processing Functions
- 10321 Testprogram for ND-500 microprogram
- 10332 ND-500 Microcode, multiuser
- 10628 SINTRAN-III VSE/VSX Utility Programs
- 10005 Subsystem Package - 32 bit format
- 10400 Subsystem Package II
- 10511 Exception Handling
- 10534 Job Execution Control
- 10634 Memory to Floppy Dump Program
- 10518 USER-ENVIRONMENT for ND-100
- 10130 XMSG for SINTRAN-III (disc based)
- 10721 BRFLINKER for ND-100

## 5720X ND-570/CXA SYSTEM

Consisting of ND-numbers:

77 ND-500/2 basic CPU module  
79 Cache control module, ND-500/2  
86 Cache memory, 32 KB, ND-500/2  
78 Memory management, ND-500/2  
76 ND-500/2 rack  
073 BCD-arithmetic for ND-500  
100 ND-100 Standard CPU  
082 ND-100/CX option, 32 bit format  
032 Memory Management System (ND-100) with Cache  
033 Operator's Panel  
034 Display Panel  
055 ND-100 rack, 20 positions  
388 Multiport Driver for MPM V, placed in ND-100  
065 ND-100/ND-500 interface  
380 Multiport memory system V, 26 pos. rack with 2 banks  
381 Multiport memory system V controller  
3 x 383 Multiport memory system V, 32 bit port  
2 x 382 MOS memory 1 MB  
117 MOS memory 1/2 MB  
2 x 881 Power supply, 150A/5V  
2 x 882 Standby power, 25A/5V, 4A/12V  
883 Power supply, 220A/5V  
230X Printer Terminal, 75 cps  
367 Floppy Disk Controller and formatter  
312 Floppy disk drive, 1.2 MB  
368 Floppy disk housing, max 2 drives  
559 Disk Controller, ECC, ND-100  
2 x 132 ND-100/ND-500 Cabinet  
10576 SINTRAN-III/VSX-500 Operating System  
10049 ND Spooling System  
10335 Symbolic debugger for ND-500  
10333 ND-500 monitor, multiuser  
10319 Linkage-loader for ND-500  
10315 Accounting system for SINTRAN-III  
10337 Backup system for SINTRAN-III  
10338 Microcode for Array Processing Functions  
10321 Testprogram for ND-500 microprogram  
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## 1 PRODUCT DESCRIPTION HARDWARE

### 010 NORD-10 CPU

Phased out.

Replaced by ND 020 NORD-10/S in June 1977.

### 011 MEMORY MANAGEMENT SYSTEM

Phased out, not available.

Virtual address, relocation and protection system for maximum 256 pages of physical memory. Page size is 2 KB of 16 bits. Contains 4 independent page index tables. The Memory Management System (MMS) is a necessary option to run the SINTRAN-III Virtual Storage Operating System, and is standard on all ND 1200, ND 1300 and ND 1400 systems.

Prerequisite: ND 010 or ND 020.

### 014 REAL-TIME CLOCK

Phased out, not available.

Interrupt generator with 20 ms intervals (50 Hz).

Prerequisite: ND 020.

### 019 COMMERCIAL INSTRUCTION SET - 48 BIT FORMAT

Phased out, not available.

Commercial instruction set to be used by the COBOL compiler. This option or ND 025 is a prerequisite for running ND 10020 COBOL on a NORD-10/S.

Prerequisite: ND 020.

### 020 NORD-10/S CPU

Available on special request only.

ND 011	Memory Management System
ND 021	CACHE Memory
ND 019	Commercial Instruction Set, 48 bit format
ND 022	Operator's Panel
ND 023	Programmable Real-Time Clock



ND 024 Conversion from ND 019 to ND 025

021 CACHE MEMORY

Phased out, not available.

Prerequisite: ND 020.

022 OPERATOR'S PANEL, NORD-10/S

Available on special request only.

Prerequisite: ND 020.

023 PROGRAMMABLE REAL-TIME CLOCK

Phased out, not available.

Prerequisite: ND 020.

024 CONVERSION FROM ND 019 TO ND 025

Phased out, not available.

Conversion from 48 to 32 bit floating point format.

Prerequisite: ND 019

025 COMMERCIAL INSTRUCTION SET - 32 BIT FORMAT

Phased out, not available.

ND 025 is a microprogram module combining ND 019 COBOL Commercial Instruction Set and ND 024 Conversion from 48 to 32 bit Floating Point Format.

Prerequisite: ND 020.

031 MEMORY MANAGEMENT SYSTEM, ND-100

Prerequisite: ND 100 and ND 038.

032 MEMORY MANAGEMENT SYSTEM AND CACHE MEMORY, ND-100

ND 031 and 2 KB of automatic high speed buffer memory. The CACHE memory is physically located on the same module as ND 031 Memory Management System.

Prerequisite: ND 100 and ND 038.

## PRODUCT DESCRIPTION HARDWARE

## 033 OPERATORS PANEL, ND-100

Prerequisite: ND 100.

## 034 DISPLAY PANEL, ND-100

Display panel. The display has three display sections, one 4-character alphanumeric register identifier, and two 8-digit octal display sections for address and data display. In addition the display panel includes two analog clocks showing the CPU utilization and the cache hit rate in percent. Display information is passed through the Memory Management Module.

Prerequisite: ND 031 and ND 033.

## 035 EXTENDED INSTRUCTION SET - 48 BIT FORMAT, ND-100

Phased out, not available.

Includes microcoded BCD arithmetic (used by COBOL), and microcoded ENTER and LEAVE, used by FORTRAN, ND 10191, and PLANC when calling and returning from subroutines.

Prerequisite: ND 100.

## 036 STANDARD PROM

Shadow card containing the PROMs for the ND-100 CPU.

Prerequisite: ND 100.

## 037 RACK WITH 12 POSITIONS FOR ND-100

Card rack for ND-100 type modules. Used in ND 038 and sold separately for systems with a common power supply. See also ND 038.

## 038 RACK AND POWER SUPPLY, 12 POSITIONS, ND-100

Card rack for ND-100 type modules complete with power fail interrupt, automatic restart and memory stand-by power. Capacity: 5V: 50A, 5V stand-by: 7A, 12V stand-by: 2A, stand-by time: 18 min. The rack can take 12 card modules, and mounts in a standard 19" frame (see also ND 037). Dimensions:

Height : 399 mm  
 Width : 483 mm  
 Depth : 500 mm

## 039 EXTENDED INSTRUCTION SET - 32 BIT FORMAT, ND-100

Phased out, not available.

Includes microcoded BCD arithmetic (used by COBOL), and microcoded ENTER and LEAVE, used by FORTRAN, ND 10191, and PLANC when calling and returning from subroutines.

Prerequisite: ND 100.

## 040 NORD-12 CPU

Phased out, not available.

The CPU used in ND 1000 systems. Includes cabinet, power supply, power fail interrupt with automatic restart and parity check.

## 041 ND-100 FAST CYCLE AND CACHE MEMORY FOR 3200 SYSTEMS

Phased out, not available.

Kit for upgrading a 3200 system with ND-100 standard CPU to fast CPU.

Prerequisite: ND 100 and ND 031

## 042 NORD-42 CPU

Phased out, not available.

OEM version of the NORD-12 CPU manufactured for Noratom-Norcontrol A/S.

## 043 ND-100 FAST CYCLE AND CACHE MEMORY FOR 3300 SYSTEMS

Phased out, not available.

Kit for upgrading a 3300 system with ND-100 standard CPU to fast CPU.

Prerequisite: ND 100 and ND 031

## 040 EXPANSION RACK AND POWER SUPPLY, ND-100

Available on special request only.

Card rack for ND-100 type modules complete with power fail interrupt, automatic restart and memory stand-by power. The rack is used for expansion of a ND 038. The rack can take 12 card modules and adds 10 available positions, as the Bus expander ND 109 takes one position in ND 038 and one position in ND 049. Capacity: 5V: 50A, 5V stand-by: 7A, 12V stand-by: 2A, stand-by time: 18 min. The rack mounts in a standard 19" frame (see also ND 037). Dimensions:

PRODUCT DESCRIPTION HARDWARE

Height: 399 mm  
Width : 483 mm  
Depth : 500 mm

Prerequisite: ND 038

050 NORD-50 CPU

Available on special request only.

32 bit general purpose CPU used in ND 1400 systems. A NORD-10 is required for control. Includes separate cabinet. When memory is larger than 1/2 MB, card No. 1943 is required.

051 STATIC MEMORY ADAPTER AND CONTROL

Available on special request only.

Optional memory for NORD-50. For information only. Please contact the Corporate Marketing department.

Prerequisite: ND 050

052 16 KB/18 BITS HIGH SPEED STATIC MEMORY MODULE

Available on special request only.

Memory module for ND 051. For information only. Please contact the Corporate Marketing Department.

Prerequisite: ND 051.

053 ND-100 CPU RACK WITH 1 MPM IV BANK

This rack contains 14 ND-100 slots and 6 MPM IV slots.

Prerequisite: ND 132.

054 OPERATORS PANEL FOR ND-520 AND ND-540

055 ND-100/CE/CX CPU RACK, 20 POSITIONS

Card rack for ND-100 modules. The rack can take 20 card modules as maximum. If more than one of the cards are the ND 858 adapter card the number of positions decreases. Each additional ND 858 takes 2 positions.

Prerequisite: ND 132

## 056 ND-100/CE/CX EXPANSION RACK, 20 POSITIONS

Card rack for ND-100 modules. The rack can take 20 card modules as maximum. If more than one of the cards are the ND 858 adapter card the number of positions decreases. Each additional ND 858 takes 2 positions.

Prerequisite: ND 55 and ND 132

## 057 OPERATORS PANEL FOR ND-SATELLITE SYSTEMS

## 060 ND-500 BASIC CPU MODULE

ND-500 basic module consisting of CPU slice, control store, prefetch module, sequencer, arithmetic, trap, total 14 cards.

Prerequisite: ND 066

## 061 CACHE CONTROL MODULE, ND-500/1

Cache control module consisting of 2 cards.

Prerequisite: ND 060

## 062 CACHE MEMORY, 32 KB, ND-500/1

Available on special request only.

Cache memory for ND-500 consisting of 2 cards. An ND-500/1 system will contain 1, 2 or 4 ND 062.

Prerequisite: ND 060 and ND 061

## 063 MEMORY MANAGEMENT, ND-500/1

The memory management consists of 2 cards each containing a memory management system, one for instructions, the other for data.

Prerequisite: ND 060

## 064 ADDRESS DRIVER, ND-500/1

Available on special request only.

Prerequisite: ND 060

## PRODUCT DESCRIPTION HARDWARE

## 065 ND-100/ND-500 INTERFACE

Interface used for transferring control information between the ND-100 and the ND-500 CPU. The interface is placed in the ND-100 rack.

Prerequisite: ND 060 and ND 100

## 066 ND-500/1 CPU RACK

ND-500 rack with 26 positions. For power supply is used 2 x ND 881.

## 068 MEMORY ACCESS CONTROLLER, ND-500/1

Prerequisite: ND 060

## 069 64 KB CACHE MODULE FOR ND-500/1

Available on special request only.

This is 2 x ND 062.

## 073 BCD-ARITHMETIC FOR ND-500

Hardware module (one board) used by COBOL-programs and some other subsystems. Execution speed-up is significant.

## 074 ND-500/1 CPU RACK WITH ONE MPM IV BANK

Contains slots for a full ND-500 CPU plus a multiport IV bank with 5 slots.

Prerequisite: ND 137

## 075 ND-500/1 CACHE ADAPTER

## 076 ND-500/2 CPU RACK

## 077 ND-500/2 BASIC CPU MODULE

078 MEMORY MANAGEMENT, ND-500/2

079 CACHE CONTROL, ND-500/2

080 ERROR LOG FOR ND 144, ND 146

081 ND-100/CX OPTION, 48 BIT FLOATING POINT FORMAT

Microcoded commercial plus operating system instruction set.

Prerequisite: ND 100

082 ND-100/CX OPTION, 32 BIT FLOATING POINT FORMAT

Microcoded commercial plus operating system instruction set.

Prerequisite: ND 100

083 ND-100/CE TO ND-100/CX UPGRADING

Prerequisite: ND 100

084 ND-100 TO ND-100/CX CPU UPGRADING, 48 BIT FORMAT

Prerequisite: ND 100

085 ND-100 TO ND-100/CX CPU UPGRADING, 32 BIT FORMAT

Prerequisite: ND 100

086 CACHE MEMORY, 32 KB, ND-500/2

Available on special request only.

Prerequisite: ND 077

090 ND-SATELLITE CABINET

Height: 480 mm

Depth : 660 mm

Width : 620 mm

PRODUCT DESCRIPTION HARDWARE

091 ND-SATELLITE CPU RACK

Contains 8 slots.

Prerequisite: ND 090

100 ND-100 CPU MODULE

For a complete system, the CPU module is combined with ND 036, operator's panel, rack, power supply and cabinet. The CPU module uses one of the available rack positions, and includes a current loop interface. For connection of NORD-10/S I/O system, see ND 180 and ND 858. Additional modules:

ND 031 Memory Management System  
ND 032 CACHE Memory  
ND 034 Display Panel, ND-100

101 MEMORY, MOS 1/2 MB/21 BIT, UPGRADING ONE CPU

The memory package consists of 8 x ND 156 and demands 8 free positions in a multiport memory system.

Prerequisite: 2 x ND 143 or ND 144 or ND 146

102 MEMORY, MOS 1 MB/21 BIT, UPGRADING ONE CPU

The memory package consists of 16 x ND 156 and demands 16 free positions in a multiport memory system.

Prerequisite: 4 x ND 143 or 2 x ND 144 or ND 146

103 MEMORY, MOS 1/2 MB/22 BIT, UPGRADING ONE CPU

Phased out, not available.

The memory package consists of 4 x ND 115 and demands 4 free positions in ND-100 rack(s).

Prerequisite: ND 038 or ND 049

104 MEMORY, MOS 1 MB/22 BIT, UPGRADING ONE CPU

Phased out, not available.

The memory package consist of 8 x ND 115 and demands 8 free positions in ND-100 rack(s).

Prerequisite: ND 038 or ND 049



## 105 MULTIPOINT MEMORY SYSTEM WITH 1/2 MB/21 BIT, UPGRADING ND-100

Phased out, not available.

Multipoint memory system including 1/2 MB of MOS memory. Consists of ND 144, ND 145, 8 x ND 156 and ND 138.

Prerequisite: System with ND 143 or ND 144 or ND 146.

## 106 MULTIPOINT MEMORY SYSTEM WITH 1/2 MB/21 BIT, UPGRADING ND-500

Phased out, not available.

Multipoint memory system including 1/2 MB of MOS memory. Consists of ND 146, 2 x ND 147, 8 x ND 156 and 2 x ND 138.

## 107 MULTIPOINT MEMORY SYSTEM FOR 1 MB, UPGRADING ND 3500 OR ND 3510

Multipoint memory system consisting of 2 x ND 146, 4 x ND 147. The system will be mounted in the cabinet containing the ND-100 CPU.

Prerequisite: ND 3500 or ND 3510

## 108 MULTIPOINT MEMORY SYSTEM FOR 2 MB, UPGRADING ND-500 SYSTEM

Multipoint memory system consisting of 4 x ND 146, 8 x ND 147, ND 132, ND 881, ND 882. The system includes cabinet ND 132.

Prerequisite: ND 3500 or ND 3510 or ND 3530

## 109 BUS EXPANDER, ND-100

Bus expander to connect two ND-100 crates (ND 38 and ND 49). The bus expander consists of two identical cards. One card is placed in each of the two crates.

Prerequisite: ND 038 and ND 049

## 111 BUS EXPANDER, ND-100

Single bus expander card, i.e. one half of ND 109. If an ND 109 has been installed, an additional crate containing one ND 111 may be coupled to the existing bus expander in the CPU crate.

Prerequisite: ND 109

## PRODUCT DESCRIPTION HARDWARE

## 113 MOS MEMORY 64 KB/22 BITS

Phased out, not available.

Variant of ND 115 with components for 64 KB.

Prerequisite: ND 100 and ND 038

## 115 MOS MEMORY 128 KB/22 BITS

Memory module for ND-100. The module performs error correction of all single bit errors and error detection of all two-bit errors. Module access time is 360 nanoseconds. See also ND numbers 116, 117, 119, 330, 397, 398 and 399.

## 116 MOS MEMORY 1/4 MB/22 BITS

As for ND 115.

## 117 MOS MEMORY 1/2 MB/22 BITS

As for ND 115.

## 118 MOS MEMORY 1/4 MB/22 BITS, UPGRADE OF ONE CPU

Phased out, not available.

Consists of 2 x ND 115.

Prerequisite: ND 100 and ND 038.

## 119 MOS MEMORY 3/4 MB/22 BITS, UPGRADE OF ONE CPU

Phased out, not available.

Consists of 6 x ND 115.

## 122 MOS MEMORY 128 KB/21 BITS

2 x ND 156 modules for upgrading one CPU.

Prerequisite: ND 070 or ND 143 or ND 144 or ND 146.

## 124 MOS MEMORY 1/4 MB/21 BITS

4 x ND 156 modules for upgrading one CPU.

Prerequisite: ND 020 or ND 143 or ND 144 or ND 146.

## 127 MOS MEMORY 3/4 MB/21 BITS

12 x ND 156 modules for upgrading one CPU.

Prerequisite: ND 020 or ND 143 or ND 144 or ND 146.

## 131 ND-100/ND-500 CABINET

Dimensions:

Height: 1683 mm

Width : 600 mm

Depth : 910 mm

## 132 ND-100/ND-500 CABINET

Cabinet including power frames, power panel and power control.

## 133 ND 143 to ND 144 UPGRADING

Consists of changes in backplane wiring and replacement of Error Detection and Log module.

Prerequisite: ND 143.

## 134 ND 144 to ND 146 UPGRADING

Consists of changes in backplane wiring and replacement of Error Detection and Log module.

Prerequisite: ND 144.

## 135 ND 145 TO ND 147 UPGRADING

ND 135 and ND 145 consist of the same card modules, and in principle both ND 147 and ND 135 could have been omitted. ND 147 simplifies description of ND 140/S systems.

Prerequisite: ND 145.

## 137 MULTIPOINT DRIVER

CPU card modules used when connecting ND 143, ND 144 or ND 146 to a NORD-10/S CPU. Always included in a ND 1300/S or ND 1400/S system. Required for upgrading from a ND 1200/S system with 64 KB modules to a corresponding ND 1300/S system. See also comments on ND 020.

Prerequisite: ND 020.

## 138 MOS MEMORY POWER

Power supply unit required with installation of second multipoint module, either second ND 140 or second ND 146. ND 138 is identical to the standard CPU power unit except for not including the 5V module.

Prerequisite: ND 020 or ND 050 or ND 100.

## 139 MULTIPOINT DRIVER NORD-10 / ND 140

Phased out, not available.

CPU card modules used when connecting ND 140 Multipoint Memory to a NORD-10 CPU. The corresponding module for NORD-10/S is ND 137. The NORD-10 CPU has room for two memory drivers, either of which can be a ND 139 or a core memory driver which is part of ND 121 or ND 128.

Prerequisite: ND 010.

## 140 MULTIPOINT MEMORY CONTROL

Phased out, not available.

ND 140 is a dual bank 4 port memory system designed for the NORD-10 CPU and ND 152 MOS Memory 16 KB/18 bits. One port is included and used by the CPU. Three ND 141 ports may be added as an option. The port bandwidth is 4 MB / second. For NORD-10/S ND 140 was replaced by ND 143, ND 144 or ND 146 in March 1978.

Prerequisite: ND 137 or ND 139 or (ND 140 and ND 138).

## 141 ADDITIONAL MEMORY PORT

Phased out, not available.

Optional memory port for ND 140 Multipoint Memory.

Prerequisite: ND 140.

## 143 ONE BANK 1/4 MB MULTIPOINT MEMORY SYSTEM

Phased out.

A stripped down version of ND 144. For upgrading to ND 144, use ND 133.

Prerequisite: ND 137.

## 144 ONE BANK 1/2 MB MULTIPOINT MEMORY SYSTEM

ND 144 is a single bank 4 port memory system designed for ND 156 MOS Memory 64 KB/21 bits. Correction of single bit errors and detection of multibit errors are done by the memory system. One port is included and used by the CPU. Three ND 145 ports may be added as option. ND 144 can be upgraded to a dual bank system, ND 146, by using ND 134. ND 144 is a replacement for ND 140.

Prerequisite: ND 137.

## 145 ADDITIONAL ONE BANK MEMORY PORT

Optional memory port for ND 143 or ND 144. This option is a prerequisite for ND 164 Bus Memory Brancher.

Prerequisite: ND 143 or ND 144.

## 146 DUAL BANK MULTIPOINT MEMORY SYSTEM

ND 146 is a dual bank 4 port memory system designed for ND 156 MOS Memory 64 KB / 21 bits and multi-CPU configurations, in NORD-10 / NORD-50 systems (ND 1400 series) or ND-100 / ND-500 systems (ND 3500 series). The maximum capacity is 1/2 MB plus 1/4 MB (8 plus 4 modules). When used in ND-100 / ND-500 systems the maximum capacity is 1/4 MB plus 1/4 MB (the two banks must be equal). Correction of single bit errors is done by the memory system. One port is included and used by the host CPU. Three ND 147 ports may be added as option. Pairs of ND 146 are used to form 32 bit systems for NORD-50.

Prerequisite: ND 136.

## 147 ADDITIONAL DUAL BANK MEMORY PORT

Optional memory port for ND 146. The parts list for this product is identical to 2 x ND 145. The cable connections, however, are different.

Prerequisite: ND 146.

## PRODUCT DESCRIPTION HARDWARE

## 148 MOS MEMORY 8 KB/16 BITS

Phased out, not available.

Memory module for NORD-12 / NORD-42. Replaced by ND 149.

## 149 MOS MEMORY 8 KB/18 BITS (NORD-12 / NORD-42)

Phased out, not available.

Memory module for NORD-12 / NORD-42. Module access time: 0.43 microseconds. Module cycle time: 0.50 microseconds. Mounted directly in the CPU rack.

Prerequisite: ND 040 or ND 042.

## 150 16 BIT MEMORY MULTIPLEXER

Available on special request only.

Prerequisite: ND 140

## 151 16 BIT MEMORY CHANNEL AMPLIFIER / EXPANDER

Available on special request only.

For information only. Please contact the Corporate Marketing Department.

## 152 MOS MEMORY 16 KB/18 BITS (NORD-10)

Phased out, not available.

Memory module for ND 140 Multiport Memory Systems. Module access time is 320 nanoseconds, and cycle time is 400 nanoseconds. This module can also be used in the CPU memory positions of the NORD-10/S CPU, which is used in the ND 1100/S systems. All ND 1200/S systems with 16 KB modules are installed with ND 140 Multiport Memory. See also comments on ND 156.

Prerequisite: ND 020 (ND1100/S systems) or ND 140.

## 154 MOS MEMORY 16 KB/16 BITS

Phased out, not available.

A 16 bit version of ND 152 for CPUs without parity check. Not manufactured. ND 152 should be offered as a replacement.

## 156 MOS MEMORY 64 KB/21 BITS

Memory module for use in the NORD-10/S CPU in ND 1100/S and ND 1200/S systems and for the Multiport Memory products ND 143, ND 144 and ND 146. All these have error detection and correction of single bit errors. Module access time is 320 nanoseconds, and cycle time 400 nanoseconds.

Prerequisite: ND 020 or ND 143 or ND 144 or ND 146.

## 158 32 BIT FOUR PORT MEMORY SYSTEM

Available on special request only.

ND 158 is the same basic hardware as ND 144 but is organized such that the two banks X and Y constitute a 1/4 MB (32 bit) memory. The ND 158 is primarily intended to be used as a NORD-50 private memory.

Prerequisite: ND 143 or ND 144 or ND 146.

## 159 32 BIT MEMORY MULTIPLEXER

Available on special request only.

For information only. Please contact the Corporate Marketing Department.

## 160 BUS CONTROLLER

Phased out, not available.

I/O system expansion module for NORD-10, providing 16 bus positions for I/O or DMA interfaces. ND 160 also contains 16 core address registers and differential line drivers for further expansion or connection of CAMAC system via ND 802. Now replaced by ND 163. Complete functional replacement for ND 160 requires ND 163 and the options ND 174 Memory Address Registers and ND 165 External Bus Driver.

Prerequisite: ND 010 or ND 160 or ND 161 or ND 162 or ND 165.

## 161 BUS SWITCH BASIC UNIT

Phased out, not available.

Electronic switching unit for switching of complete I/O bus to one of two connected CPUs. The unit has one switch as standard and may be expanded with three optional switches, ND 162, to a 4-branch system where each branch individually can be connected to CPU A or B. The BUS SWITCH is designed for systems with back-up CPUs. The ND 161 should be mounted in a separate cabinet ND 170.

Prerequisite: ND 010 or ND 020 or ND 165 or ND 180 and ND 170.

## PRODUCT DESCRIPTION HARDWARE

## 162 ADDITIONAL SWITCH MODULE

Phased out, not available.

Option for ND 161.

Prerequisite: ND 161.

## 163 BUS RECEIVER

Phased out, not available.

The ND 163 Bus Receiver consists of a 19" rack with a printed circuit backplane to accommodate the Bus Receiver, the ND 174 (16 Memory Address Registers), the ND 164 (Bus Memory Brancher), and 8 I/O slots. By adding a ND 169 (Bus Extender), 8 additional I/O slots are available. The Bus Receiver may drive up to 16 I/O interfaces / DMA controllers and 8 positions are always reserved for a DMA controller. The Bus Receiver can control both CPU controlled and DMA transfers.

Prerequisite: ND 010 or ND 020 or ND 160 or ND 161 or ND 162 or ND 163 or ND 165 (when in second cabinet) or ND 180.

## 164 BUS MEMORY BRANCHER

Phased out, not available.

Optional module for ND 163, providing a branch directly to a Multiport Memory System and bypassing the CPU bus. This module is required for all systems using disks with 10 MHz transfer rate.

Prerequisite: ND 163 and (ND 141 or ND 145 or ND 147).

## 165 EXTERNAL BUS DRIVER

Phased out, not available.

Module required when extending the I/O and DMA bus outside one cabinet. Two bus positions are used by ND 165, one for address and one for data. The module may also be used between two ND 163 modules in one cabinet to isolate parts of the I/O system from the main I/O system. This may simplify debugging when customers install their own I/O controllers in the CPU cabinet.

Prerequisite: ND 040 or ND 163.

## 166 32 BIT MEMORY CHANNEL AMPLIFIER / EXPANDER

Available on special request only.

For information only. Please contact the Corporate Marketing Department.



## 167 DMA ADDRESS EXTENDER

Available on special request only.

The ND 167 DMA address extender expands a DMA channel's address space from 1/2 MB (18 bit) to 32 MB (24 bits). This implies that a DMA transfer may take place anywhere within this large address space. This gives unique addressing capability even in multiprocessor systems with a large memory system. The DMA address extender is plugged directly into the NORD-10/S I/O system and should always be located next to the bus receiver - ND 163 - and the bus brancher - ND 164. This restriction is due to cabling requirements.

## 168 BUS EXTENDER, 4 I/O SLOTS

Phased out, not available.

Option for ND 163. See also ND 169.

## 169 BUS EXTENDER, 8 I/O SLOTS

Phased out, not available.

Option for ND 163. See also ND 168.

## 170 CARD FRAME

Phased out, not available.

Module with space for 32 printed circuit boards (standard NORD-10 card frame). Example of use: See configuration chart for ND 1320/S system.

## 171 NORD-10 CABINET

Phased out, not available.

Standard NORD-10 cabinet. Cooling fans and 220V AC wiring and filtering is included. Cabinet size:

Height: 1606 mm  
Width : 582 mm  
Depth : 730 mm

## 172 MAIN I/O CHANNEL WIRING

Phased out, not available.

Wiring of I/O channel to 3 plugs in the CPU I/O Panel for expansion of I/O system to next cabinet.

Prerequisite: ND 160 or ND 165 or ND 180

## PRODUCT DESCRIPTION HARDWARE

## 173 NORD-1 I/O CHANNEL

Phased out, not available.

Optional NORD-1 compatible I/O channel for NORD-10. Note that this option is not available for NORD-10/S.

Prerequisite: ND 010.

## 174 16 MEMORY ADDRESS REGISTERS

Phased out, not available.

Optional module for ND 163 Bus Receiver. This option is required with ND 567 DMA Controller.

Prerequisite: ND 163.

## 175 POWER SUPPLY, 5V / 100A

## 176 BLOWER ASSEMBLY

Phased out, not available.

## 177 PLUG PANEL

Phased out, not available.

## 178 ND-100 CABINET

Dimensions:

Height: 990 mm  
Width : 640 mm  
Depth : 850 mm

## 180 BUS DRIVER, ND-100 TO ND 163

ND-100 bus driver for ND 163 Bus Receiver (NORD-10/S I/O system). Occupies one card position in CPU rack. See also ND 858.

Prerequisite: ND 100 and ND 038.

## 189 MULTIPORT UPGRADING OF ND 140 TO ND 144

Available on special request only.

Module for upgrading of ND 140 Multiport Memory to ND 144. ND 189 should only be used for customers having some machines with 16 KB modules and with 64 KB modules and dynamic size of configurations.

Prerequisite: ND 140.

## 190 32 BIT MEMORY PORT

Available on special request only.

ND 190 is ND 158's associate 32 bit memory port.

Prerequisite: ND 158.

## 194 MULTIPORT DRIVER, ND-100 TO ND 143, ND 144 OR ND 146

Connects the ND-100 CPU to the multiport memory system.

Prerequisite: ND 100 and ND 038

## 199 ND-100 CABINET 4 MODULES

Phased out, not available.

Dimensions:

Height: 730 mm

Width : 540 mm

Depth : 850 mm

## 202 TELETYPE ASR 33

Phased out, not available.

Prerequisite: ND 250.

## 204 TEKTRONIX 4010

Phased out, not available.

Replaced by ND 214.

206X PRINTER TERMINAL 30 CPS, DECWRITER LA36

Phased out, not available.

30 characters / second, 132 columns, 96 ASCII character set. Alpha-8 options (X): E, N, S. Other options: ND 705 for connection to modems.

Prerequisite: ND 260 or (ND 711 and ND 705) or ND 362 or ND 271 ND 272.

208 DISPLAY TERMINAL TANDBERG TDV 2000

Phased out, not available.

Replaced by ND 224.

210E DISPLAY TERMINAL VIGSTAR GTX

Phased out, not available.

24 lines of 80 characters each. 64 ASCII character set.

Prerequisite: ND 260 or (ND 711 and modem cable) or ND 362 or ND 271 or ND 272.

212N TEXT EDITING TERMINAL (NORTEXT)

Phased out, not available.

Display terminal used with text processing system (NORTEXT). 16 plus 2 lines of 80 characters each. Expanded ASCII character set with 224 characters in 11 x 11 dot matrix in writable control store. Keyboard with 128 keys, including 60 keys for commands and typesetting functions.

Prerequisite: ND 260 or ND 362 or NR 271 or ND 272.

213 DISPLAY TERMINAL TANDBERG TDV 2000 / 3270

Phased out, not available.

Replaced by ND 225.

Prerequisite: ND 260 or ND 271 or ND 272 or ND 362.

214 GRAPHIC DISPLAY TEKTRONIX 4006

Phased out, not available.

Resolution: 1024 x 780 points. 11 inches screen. 64 ASCII characters in 5 x 7 dot matrix. Software: PLOT 10 software package. Hardcopy option: ND 217.  
NOTE: Maintenance is subcontracted to local dealer.

Prerequisite: ND 271 or ND 272 or ND 362.

215 GRAPHIC DISPLAY TEKTRONIX 4012

Phased out, not available.

Resolution: 1024 x 780 points. 11 inches screen. 96 ASCII characters in 7 x 9 dot matrix. Software: PLOT 10 software package. Hardcopy option: ND 217. NOTE: Maintenance is subcontracted to local dealer.

Prerequisite: ND 271 or ND 272 or ND 362.

216 GRAPHIC DISPLAY TEKTRONIX 4014-1

Phased out, not available.

Resolution: 4096 x 3120 points. 19 inches screen. 96 ASCII characters in 7 x 9 dot matrix. Enhanced graphic hardware. Software: PLOT 10 software package. Hardcopy option: ND 217. NOTE: Maintenance is subcontracted to local dealer.

Prerequisite: ND 271 or ND 272 or ND 362.

217 HARDCOPY UNIT FOR TEKTRONIX TERMINALS (4631)

Phased out, not available.

NOTE: Maintenance is subcontracted to local dealer.

Prerequisite: ND 214 or ND 215 or ND 216.

220N DISPLAY TERMINAL TANDBERG 2115 / SDS / 77

Phased out, not available.

This product is a 1977 model now replaced by ND 221N. Service is subcontracted to Tandberg, and ND does not keep any stock of spare parts.

Prerequisite: ND 260 or (ND 711 and modem cable) or ND 271 or ND 271 or ND 362.

221N DISPLAY TERMINAL TANDBERG TDV 2115 / SDS

Phased out, not available.

ND 221N has the same display unit as ND 224N, but is equipped with a keyboard specified by Statens Driftssentral (SDS). The keyboard functions are valuable when used as a remote terminal to Honeywell Bull systems.

Prerequisite: ND 260 or (ND 711 and modem cable) or ND 271 or ND 272 or ND 362.

224X DISPLAY TERMINAL TANDBERG TDV 2115

Phased out, not available.

25 lines of 80 characters each. 95 ASCII character set. Cursor control. Attribute mode. Alphabet options (X): E, N, S, R = Russian.

Prerequisite: ND 260 or (ND 711 and modem cable) or ND 271 or ND 272 or ND 362.

225X DISPLAY TERMINAL TANDBERG TDV 2115 / 3270

Phased out, not available.

25 lines of 80 characters each. 95 ASCII character set. Cursor control. Attribute mode. Alphabet options (X): E, N, S.

Prerequisite: ND 260 or (ND 711 and modem cable) or ND 271 or ND 272 or ND 362.

226E DISPLAY TERMINAL INFOTON 200/1

Phased out, not available.

24 lines of 80 characters each. 64 ASCII character set. Cursor control.

Prerequisite: ND 260 or (ND 711 and modem cable) or ND 271 or ND 272 or ND 362.

227X DISPLAY TERMINAL INFOTON 200/4

Phased out, not available.

24 lines of 80 characters each. 96 ASCII character set. Cursor control. Keyboard with numeric pad and 12 function keys. Alphabet options (X): E, N, S.

Prerequisite: ND 260 or (ND 711 and modem cable) or ND 271 or ND 272 or ND 362.

228X DISPLAY TERMINAL INFOTON 400/4

Phased out, not available.

24 lines of 80 characters each. 96 ASCII character set. Cursor control. Keyboard with numeric pad and 12 function keys. Alphabet options (X): E, N,

S. Attribute mode. X3.64 standard for control functions, which is not recommended in connection with ND 10013 NSHS NORD Screen Handling System.

Prerequisite: ND 260 or (ND 711 and modem cable) or ND 271 or ND 272 or ND 362.

#### 230X PRINTER TERMINAL 75 CPS, OMNI 825 KSR

75 characters / second, 132 columns, 128 ASCII character set. Alphabet options (X): E, N, S.

Prerequisite: ND 260, ND 271, ND 272

#### 232X TEXT PRINTER, DIABLO 1650 FOR RS 232 INTERFACE

Phased out, not available.

Up to 38 cps typical on an average English text in pitch 12 mode. Switchable baud rates of 110, 300 and 1200. 132 columns 10 pitch or 158 columns 12 pitch. If the distance from the CPU to the printer is more than 15 m, 2 times ND 750 Local modem is required.

Prerequisite: ND 711, ND 271, ND 272

#### 233 SHEET FEEDER FOR ND 232 (DIABLO 1650)

Phased out, not available.

The ND 233 inserts and stacks automatically cut sheets into the ND 232. Sheets sizes are possible from 3.6 to 14 inches in length and 5.5 to 12 inches in width. Capacity is approximately 200 sheets of 20 pounds paper.

Prerequisite: ND 232

#### 234 ACOUSTIC COVER FOR ND 232 (DIABLO)

Phased out, not available.

Cuts down the noise level of the Diablo considerably.

#### 235 TEXT PRINTER, DP-55

Daisy wheel printer, prints approximately 50 characters / second on average text. Noise level less than 62 dB. Weight 24 kgs.

## PRODUCT DESCRIPTION HARDWARE

## 236 SHEET FEEDER FOR ND 235

Prerequisite: ND 235

## 237 TRACTOR FEEDER FOR ND 235

Prerequisite: ND 235

## 240 DISPLAY TERMINAL TANDBERG TDV 2215 FOR NORTEXT (TET)

Phased out, not available.

This version is a Text Editing Terminal for ND's NORTEXT systems.

Prerequisite: ND 260 or (ND 711 and modem cable) or ND 271 or ND 272 or ND 362.

## 241 DISPLAY TERMINAL, VISUAL-200, SPECIAL SWEDISH VERSION

Available on special request only.

Standard for the Swedish market.

## 242X DISPLAY TERMINAL TANDBERG TDV 2215

25 lines of 80 characters each, 15 inch screen. 256 character set. Can be run in TDV 2115 compatible mode. Switches for speed etc. are set via a screen menu. PUSH keys may be programmed with simple command strings. Alphabet options (X); E, N, S, G. Local Printer may be attached, see ND 243, ND 244 and ND 245.

Prerequisite: ND 260 or (ND 711 and modem cable) or ND 271 or ND 272 or ND 362.

## 243 RS 232 / V24 PRINTER INTERFACE FOR ND 242 AND ND 246

Interface in ND 242 or ND 246 for a local printer. See also ND 244 and ND 245.

## 244 CURRENT LOOP PRINTER INTERFACE FOR ND 242 AND ND 246

Interface in ND 242 or ND 246 for a local printer. See also ND 243 and ND 245.



## 245 PRINT BUFFER FOR ND 242 AND ND 246

If this print buffer (one page) is installed, the user may continue to work interactively at the terminal whilst printing is taking place.

## 246X NOTIS DISPLAY TERMINAL TDV 2200/9

The NOTIS terminal. 25 lines of 80 characters each. 256 character set. Special keys for NOTIS functions. Switches for speed etc. are set via a screen menu. PUSH keys may be programmed with simple command strings. 15 inch screen, green on green. Swivel, tilt and vertical adjustment. Detached keyboard. Options (X); E, N, S, G, International. Local printer may be attached, see ND 243, ND 244 and ND 245.

Prerequisite: ND 260 or (ND 711 and modem cable) or ND 271 or ND 272 or ND 362.

## 247 UPGRADING FROM ND 242 TO ND 246

## 248 NOTIS DISPLAY TERMINAL FACIT 4420

A FACIT 4420 with ND specified keys and functions. 24 lines of 80 characters. Special keys for most NOTIS functions. Semi graphic characters for box graphics etc. 12 inch screen, green on green. Detached keyboard.

## 250 INTERFACE FOR CURRENT LOOP DEVICES

Phased out.

50 to 9600 baud. Motor start / stop signal and timing delay. Replaced by ND 260.

Prerequisite: ND 010 or ND 040 or ND 042 or ND 160 or ND 163.

## 251 TDV 2215 WITH KEYBOARD FOR LATIN AND CYRILLIC LETTERS

## 252 INTERCOMPUTER LINK

Phased out, not available.

110 to 9600 baud current loop with optical isolation. Two cables of 4 meters each are included.

Prerequisite: (ND 260, ND 271, ND 272, ND 362) in both CPUs.

253 TERMINAL INTERFACE, 1 LINE

Phased out, not available.

50 to 9600 baud serial interface. Split speed possibility. 20 mA current loop or CCITT V.24 (EIA RS-232 C). Replaced by ND 260.

254 INTERCOMPUTER LINK INTERFACE

Phased out, not available.

Identical to ND 253 except for plug-wiring and non-standard interconnecting cable.

Prerequisite: ND 010, ND 040 or ND 163.

255 PARALLEL DMA INTERFACE

Phased out, not available.

257 INTERFACE FOR SILENT KSR 733

Phased out, not available.

258 CURRENT LOOP INTERFACE FOR TERMINET 340 AND TALLY 1612

Phased out, not available.

50 to 9600 baud serial interface. 20 mA current loop with busy signal. Replaced by ND 271 or 272 for Tally and Terminet printers.

Prerequisite: ND 020 or ND 040 or ND 160 or ND 163 or ND 858.

260 TERMINAL INTERFACE, 4 LINES

Phased out, not available.

Four independent 50 to 9600 baud serial interface lines. Split speed possibility. Current loop 20 mA.

Prerequisite: ND 020 or ND 040 or ND 160 or ND 163.

266 TDV 2200/9 WITH VIDEO OUTLET, SECAM SYSTEM

267 TDV 2200/9 WITH VIDEO OUTLET, PAL SYSTEM

271 TERMINAL INTERFACE, 4 LINES (FOR ND-100)

The same module as ND 272 with components for 4 lines only.

Prerequisite: ND 100 and ND 038.

272 TERMINAL INTERFACE, 8 LINES (FOR ND-100)

8 independant 50 to 9600 baud serial interface lines with split speed possibility. The signal mode for the lines are controlled by 8 switches controlling one line each. Line modes are 20 mA current loop or CCITT V.24 (RS-232 C). The module is designed as two identical parts. Each part is identical to the design used in ND 271, ND 362.

Prerequisite: ND 100 and ND 038 or ND 055

281 TERMINAL AND NTB INTERFACE, 4 + 4 LINES, ND-100

Four independent 50 to 9600 baud serial interface lines with split speed possibility plus 4 85 baud serial interface lines. The signal mode for the lines are controlled by 8 switches controlling one line each. Line modes are 20 mA current loop or CCITT V.24 (RS-232 C).

Prerequisite: ND 100 and ND 038 or ND 055

283 TERMINAL INTERFACE, 8 LINES (ND-100)

Same as ND 272, but ND 283 has to be used when the number of terminals connected to one CPU exceeds 64. It is only necessary to use ND 283 for those terminals exceeding 64.

Prerequisite: ND 100 and ND 038 or ND 055

301 PAPER TAPE READER

300 characters / second. Tape spooling device included. 8 channels.

Prerequisite: ND 351.

302 PAPER TAPE READER

Available on special request only.

Rugged version of ND 301 for ship environment.

Prerequisite: ND 351.

## PRODUCT DESCRIPTION HARDWARE

## 303 PAPER TAPE PUNCH FACIT 4070

70 characters / second. 8 channels.

Prerequisite: ND 352.

## 305 FLOPPY DISK DRIVE 308 KB

Phased out.

Drive module for ND 355. Shugart model SA800. Mechanical dimensions:

Width : 241 mm

Height: 117 mm

Depth : 362 mm

Prerequisite: ND 355, ND 360.

## 306 PAPER TAPE READER (NORTEXT)

300 characters / second. Switch for tape width 5 and 8 channels. Spooling device included. Used in connection with text processing system (NORTEXT).

Prerequisite: ND 351.

## 307 PAPER TAPE PUNCH (NORTEXT)

Phased out, not available.

70 characters / second. 5 channels. Used in connection with text processing system (NORTEXT).

Prerequisite: ND 352.

## 308 FLOPPY DISK DRIVE 308 KB

Phased out, not available.

Drive module for ND 358. Shugart model SA800R. Mechanical dimensions:

Width : 217 mm

Height: 117 mm

Depth : 362 mm

Prerequisite: ND 358.

## 310 FLOPPY DISK DRIVE, 308 KB

Shugart model SA800R. Mechanical dimensions:

Width : 217 mm

Height: 117 mm

Depth : 362 mm

Prerequisite: ND 358.

## 312 FLOPPY DISK DRIVE, 1.2 MB

Shugart Drive, dual density - double side, capacity 1.2 MB. In a standard system, this drive can also read and write 308 KB floppies.

Width : 241 mm

Height: 117 mm

Depth : 362 mm

## 330 MOS MEMORY 4 MB/22 BIT

8 x ND 117. Upgrade for one CPU.

## 331 2 MB MOS MEMORY FOR MPM V

This is 2 x ND 382.

Prerequisite: An MPM V system.

## 332 3 MB MOS MEMORY FOR MPM V

This is 3 x ND 382.

Prerequisite: An MPM V system.

## 333 4 MB MOS MEMORY FOR MPM V

This is 4 x ND 382.

Prerequisite: An MPM V system.

## 351 PAPER TAPE READER INTERFACE

Prerequisite: ND 010 or ND 040 or ND 163 or ND 858.

## PRODUCT DESCRIPTION HARDWARE

## 352 PAPER TAPE PUNCH INTERFACE

Prerequisite: ND 010 or ND 040 or ND 163 or ND 858.

## 355 FLOPPY DISK CONTROLLER / FORMATTER FOR ND 305

Phased out, not available.

Free standing disk system containing formatter, frame and cabinet for up to three disk drives type ND 305. Power supply is included. Note that the interface control cards also are included in the ND 355. To be replaced by ND 358 during 1978.

Prerequisite: ND 163.

## 356 DISKETTE PACKAGE OF 10

## 358 FLOPPY DISK CONTROLLER / FORMATTER FOR ND 308

Phased out, not available.

System mounted in CPU cabinet containing interface cards, formatter and frame for up to two disk drives type ND 308.

Prerequisite: ND 020 and ND 163.

## 361 FLOPPY DISK CABINET AND FORMATTER, MAX 2 DRIVES

Phased out.

Freestanding floppy disk unit, including both cabinet and formatter, for 1 or 2 drives. Diskettes used are 308 KB.

Prerequisite: ND 362

## 362 FLOPPY DISK CONTROLLER WITH TERMINAL INTERFACE, 4 LINES (FOR ND-100)

Phased out.

The ND 362 includes a floppy disk control module which also has control of 4 terminal lines. The control module requires one standard rack position. Interface specifications for the terminal lines are identical to ND 271 / ND 272. See also ND 363.

Prerequisite: ND 100 and ND 038 and ND 178.

## 364 FLOPPY DISK HOUSING AND FORMATTER FOR ND 310 (FOR ND-100)

Phased out.

The ND 364 includes a floppy disk formatter module, a rack for mounting up to 2 floppy disk drives type ND 310, and a power supply for formatter and drives.

Prerequisite: ND 100 and ND 038 and ND 178.

## 367 FLOPPY DISK CONTROLLER AND FORMATTER

Microprocessor based floppy disc controller and formatter which occupies one position in the ND-100 rack, i.e. no formatter is required in the actual drive unit.

Prerequisite: ND 100 or ND 038 or ND 055

## 368 FLOPPY DISK HOUSING

Housing for 1 or 2 floppy disk units. Includes power supply. To be mounted in a ND-100 cabinet, i.e. NOT FREESTANDING !.

Prerequisite: ND 310 or ND 312

## 380 CRATE WITH 2 BANKS, 2 X 12 POSITIONS, MPM V

Available on special request only.

## 381 CONTROLLER FOR MPM V

Available on special request only.

## 382 1 MB MOS MEMORY FOR MPM V

## 383 32 BIT PORT FOR MPM V

Available on special request only.

## 384 DRIVER FOR MPM V

Available on special request only.

386 CRATE WITH ONE BANK, 26 POSITIONS, MPM V

Available on special request only.

390 MPM IV BUS CONTROLLER

The bus controller card for Multiport IV. One such card is needed in each bank.

Prerequisite: ND 053, ND 074, ND 392

391 MPM IV 16 BIT PORT

Single 16 bit port for the Multiport IV memory system. ND-500 requires two such cards in each bank, one for data and one for instructions.

Prerequisite: ND 053, ND 074, ND 392

392 MPM IV MEMORY SYSTEM RACK WITH 2 BANKS

Multiport IV memory system rack. May contain up to 7 MB of memory, and consists of two 10 slot banks. Three positions in each bank are taken up by ND 390 and 2 x ND 391.

Prerequisite: ND 132

395 MPM IV MEMORY SYSTEM BUS DRIVER

Driver for the Multiport IV memory system. Placed in the ND-100 CPU rack.

Prerequisite: ND 053, ND 055

397 MOS MEMORY 1 MB/22 BIT

2 x ND 117. Upgrade for one CPU.

398 MOS MEMORY 2 MB/22 BIT

4 x ND 117. Upgrade for one CPU.

399 MOS MEMORY 3 MB/22 BIT

6 x ND 117. Upgrade for one CPU.



400 CARD READER, 285 CPM

Prerequisite: ND 450.

401 CARD READER, 600 CPM

Available on special request only.

Prerequisite: ND 450 or ND 363.

407 CDC LINE PRINTER, 600 LPM

Phased out, not available.

411 STAND FOR ND 445

414X MATRIX PRINTER, CDC 9316

Phased out, not available.

Replaced by ND 416 / ND 417.

416X MATRIX PRINTER 120 CPS, TALLY 1202

Phased out, not available.

120 characters / second optimized bidirectional printing, 132 columns, 96 ASCII character set. Dot matrix 9 x 7. Alphabet options (X): E, N, S. For maximum speed, use ND 417.

Prerequisite: ND 461

417X MATRIX PRINTER 160 CPS, TALLY 1602

Phased out, not available.

160 characters / second optimized bidirectional printing, 132 columns, 96 ASCII character set. Dot matrix 7 x 7. Alphabet options (Y): E, N, S. For maximum print quality, use ND 416.

Prerequisite: ND 461

## PRODUCT DESCRIPTION HARDWARE

## 418X MATRIX PRINTER 160 CPS, TALLY 1612 FOR RS 232 INTERFACE

Phased out, not available.

160 characters / second optimized bidirectional printing, 132 columns, 96 ASCII character set. Dot matrix 7 x 7. Alphabet options (X): E, N, S.

Prerequisite: ND 271 or ND 272 or ND 362.

## 419X MATRIX PRINTER 160 CPS, TALLY 1612 FOR CURRENT LOOP INTERFACE

Phased out, not available.

160 characters / second optimized bidirectional printing, 132 columns, 96 ASCII character set. Dot matrix 7 x 7. Alphabet options (X): E, N, S.

Prerequisite: ND 271 OR ND 272

## 420 CARD PUNCH, 20 CPM

Phased out, not available.

Available on special order only. Maintenance is subcontracted to Burroughs.

Prerequisite: ND 457.

## 422 EPSON MX-80 MK I TO MK III UPGRADE

Prerequisite: ND 423.

## 423X MATRIX PRINTER, EPSON MX-80

Phased out, not available.

80 character per second dot matrix printer especially for use within an office environment. The dot matrix is 9 x 9. There is a 96 character set with lowercase descenders. Interface RS 232. The printer is well suited for connection directly to a display, ND 242, or to the CPU. If the distance from the CPU or display exceeds 15 meters, 2 x ND 750, limited distance modem is required.

Prerequisite: ND 242, ND 271, ND 272, ND 281

## 424X MATRIX PRINTER, EPSON MX-80 MK III

80 character per second dot matrix printer especially for use within an office environment. The dot matrix is 9 x 9. There is a 96 character set with lowercase descenders. Interface RS 232. The printer is well suited for connection directly to a display, ND 246 or ND 248, or to the CPU. If the distance from the CPU or display exceeds 15 meters, 2 x ND 750 limited

distance modem is required.

425X LINE PRINTER TERMINET 340 FOR CURRENT LOOP INTERFACE

Phased out, not available.

132 columns. 64 ASCII character set with OCR-B font. Optional print band: ND 435. Alphabet options (X): E, N, S.

Prerequisite: ND 271 OR ND 272

426X LINE PRINTER TERMINET 340 FOR PARALLEL INTERFACE

132 columns. 64 ASCII character set with OCR-B font. Optional print band: ND 435. Alphabet options (X): E, N, S.

Prerequisite: ND 655

427X LINE PRINTER TERMINET 340 FOR RS 232 INTERFACE

132 columns. 64 ASCII character set with OCR-B font. Optional print band: ND 435. Alphabet options (X): E, N, S. If the distance between the printer and the CPU is more than 15 metres, 2 x ND 750 Local modem is required.

Prerequisite: ND 272, ND 271, ND 711

428 TRACTOR FEED OPTION FOR ND 445 AND ND 447

429 DOUBLE SHEET FEED OPTION FOR ND 445 AND ND 447

430X LINE PRINTER, 300 LPM

Phased out, not available.

132 columns. 64 ASCII character set with OCR-B font. User changable horizontal print band. Optional print bands: ND 437 or ND 438. Alphabet options (X): E, N, S.

Prerequisite: ND 458.

431X LINE PRINTER, 600 LPM

Available on special request only.

132 columns. 64 ASCII character set with OCR-B font. User changable horizontal print band. Optional print bands: ND 437 or ND 438. Alphabet options (X): E, N, S.

Prerequisite: ND 458.

432X LINE PRINTER, 900 LPM

Phased out, not available.

132 columns. 64 ASCII character set with OCR-B font. User changable horizontal print band. Optional print bands: ND 437 or ND 438. Alphabet options (X): E, N, S.

Prerequisite: ND 458.

433X LINE PRINTER, 1000 LPM

132 columns. 64 ASCII character set with OCR-B font. Optional print band: ND 434. Alphabet options (X): E, N, S.

Prerequisite: ND 459

434 96 CHARACTERS OPTION FOR ND 433

Prerequisite: ND 433

435 PRINT BAND, 96 CHARACTERS FOR ND 425 AND ND 426

Prerequisite: ND 425 or ND 426

437X PRINT BAND, 64 CHARACTERS

User changable print band for line printers ND 430, ND 431 and ND 432. Alphabet options (X): E, N, S.

Prerequisite: ND 430 or ND 431 or ND 432.

438X PRINT BAND, 96 CHARACTERS

User changable print band with 96 ASCII characters for line printers ND 430, ND 431 and ND 432. Alphabet options (X): E, N, S. Printing speed is reduced approximately 20 % compared to 64 characters.

Prerequisite: ND 430 or ND 431 or ND 432.

441E 600 LPM LINE PRINTER FOR US. SAME AS ND 431 BUT 60 HZ / 115 V

Available on special request only.

Prerequisite: ND 458.

443X PRINT BAND, 64 CHAR

Prerequisite: ND 425, ND 426 or ND 427.

444X PRINT BAND, 96 CHAR

Only available when ordered together with the printer. i.e. not as add-on.

Prerequisite: ND 425, ND 426 or ND 427.

445 MULTIFUNCTION PRINTER

Phased out, not available.

Replaced by ND 447

446 GRAPHICS AND LOADABLE FONTS OPTION FOR ND 445 AND ND 447

447 MULTIFUNCTION PRINTER WITH 6 FONTS (INCLUDING COURIER)

ND's customised version of the Philips GP 300L printer. Correspondance quality at 80 characters per second, draft quality at 300 characters per second.

450 CARD READER INTERFACE

For card readers ND 400 / ND 401.

Prerequisite: ND 040 or ND 163 or ND 858.

457 CARD PUNCH INTERFACE

Phased out, not available.

Prerequisite: ND 163 or ND 858.

## PRODUCT DESCRIPTION HARDWARE

## 458 LINE PRINTER INTERFACE

For ND 430, ND 431 and ND 432.

Prerequisite: ND 040 or ND 163 or ND 858.

## 459 LINE PRINTER INTERFACE FOR ND 433

Prerequisite: ND 163 or ND 858.

## 461 MATRIX PRINTER INTERFACE

Phased out.

For ND 416 and ND 417.

Prerequisite: ND 040 or ND 163 or ND 858.

## 463 CURRENT LOOP ADAPTER FOR ND 416 / ND 417

Phased out.

Delayed availability. Check for possible delivery. Reduces printing speed by 20 - 30 %.

Prerequisite: (ND 416 or ND 417) and ND 253 modified.

## 511 CARTRIDGE DISK DRIVE 10 MB

Disk unit with 5 MB fixed disk and 5 MB removable cartridge. Average access time: 47.5 ms. Transfer rate 312 KB / second (2.5 MHz). One cartridge is included. For additional cartridges, see ND 512. Product: CDC 9427H.

Prerequisite: ND 551 or ND 562.

## 512 CARTRIDGE DISK PACK, 5 MB

Disk pack for ND 511.

## 513 DISK DRIVE, 33 MB

Phased out, not available.

Disk drive with one 33 MB removable disk pack. Average access time: 40 ms. Transfer rate: 1.2 MB / second (9.8 MHz). One disk pack is included. For additional packs, see ND 516. Product: CDC SMD 9760.

Prerequisite: ND 552.

## 514 DISK DRIVE, 66 / 75 MB

Disk drive with one 66 / 75 MB removable disk pack. Capacity is determined by controller. Average access time: 40 ms. Transfer rate: 1.2 MB / second (9.8 MHz). One disk pack is included. For additional packs, see ND 522. Product: CDC SMD 9762.

Prerequisite: ND 552 or ND 558 or ND 559.

## 515 MAGNETIC TAPE DRIVE, 45 IPS, 800 BPI, 9 TRACK

Phased out, not available.

Phased out except for units in stock. For replacement, see ND 524.

Prerequisite: Already installed controller (ND 555).

## 516 DISK PACK, 33 MB

Disk pack for ND 513.

## 522 DISK PACK, 66 MB

Disk pack for ND 514.

## 523 ACOUSTIC DISK CABINET

Acoustic cabinet for ND 513 / ND 514. Now standard on all new disk drives. Noise level reduction is approximately 15 dB (A).

Prerequisite: ND 513 or ND 514.

## 524 MAGNETIC TAPE DRIVE, 45 IPS, 800 BPI, 9 TRACK

Cabinet included. For 7 track unit, see ND 538.

Prerequisite: ND 534 or ND 536.

## 525 MAGNETIC TAPE DRIVE, 45 IPS, 1600 BPI, 9 TRACK

Available on special request only.

Cabinet included. This unit is available on special request (planned volume = 0). Contact Order Office regarding delivery time. Recommended alternative is the 75 ips unit ND 528 (or ND 529).

Prerequisite: ND 535 or ND 536.

## 526 MAGNETIC TAPE DRIVE, 45 IPS, 800 / 1600 BPI, 9 TRACK

Phased out, not available.

Cabinet included. This unit is available on special request (planned volume = 0). Contact Order Office regarding delivery time. Recommended alternative is the 75 ips unit ND 529.

Prerequisite: ND 536.

## 527 MAGNETIC TAPE DRIVE, 75 IPS, 800 BPI, 9 TRACK

Phased out, not available.

Cabinet included. This unit is available on special request (planned volume = 0). Contact Order Office regarding delivery time. Recommended alternative is the 45 ips unit ND 524. For 7 track unit, see ND 539.

Prerequisite: ND 534 or ND 536.

## 528 MAGNETIC TAPE DRIVE, 75 IPS, 1600 BPI, 9 TRACK

Cabinet included.

Prerequisite: ND 535.

## 529 MAGNETIC TAPE DRIVE, 75 IPS, 800 / 1600 BPI, 9 TRACK

Cabinet included.

Prerequisite: ND 536.

## 534 MAGNETIC TAPE FORMATTER, 800 BPI

This formatter may handle 1 to 4 drives of type ND 524 or ND 527 in any combination, 1 to 4 drives of type ND 538 (no combination), or 1 to 4 drives type ND 539 (no combination). Note that two Magnetic Tape formatters can be connected to one Magnetic Tape controller.

Prerequisite: ND 556 or ND 557.

## 535 MAGNETIC TAPE FORMATTER, 1600 BPI

This formatter may handle any combination of up to 4 drives of type ND 525 or ND 528.

Prerequisite: ND 556 or ND 557.



## 536 MAGNETIC TAPE FORMATTER, 800 / 1600 BPI

This formatter may handle up to 4 drives of type ND 529.

Prerequisite: ND 556 or ND 557.

## 537 MAGNETIC TAPE FORMATTER, 1600 / 6250 BPI

This formatter may handle up to 4 drives of type ND 543.

Prerequisite: ND 560

## 538 MAGNETIC TAPE DRIVE, 45 IPS, 800 BPI, 7 TRACK

Available on special request only.

Cabinet included. This unit is available on special request. Contact Order Office regarding delivery time.

NOTE: The controller does not perform any data packing or unpacking, and handles each byte as 8 bits. Bit 7 (15) is set to zero during READ and dropped during WRITE. Data packing therefore has to be handled by application program.

Prerequisite: ND 534.

## 539 MAGNETIC TAPE DRIVE, 75 IPS, 800 BPI, 7 TRACK

Available on special request only.

Cabinet included. This unit is available on special request. Contact Order Office regarding delivery time. See also note on ND 538.

Prerequisite: ND 534 or ND 536.

## 543 MAGNETIC TAPE DRIVE, 6250 BPI

1600 and 6250 bpi, 125 ips unit. Auto thread / load for normal reels and easy-load cartridges. Rewinds a 2400' reel in 60 seconds.

Prerequisite: ND 560 and ND 537

## 544 MAGNETIC TAPE FORMATTER 800 BPI, 60 HZ / 115 V

Available on special request only.

## PRODUCT DESCRIPTION HARDWARE

## 547 MAGNETIC TAPE FORMATTER 800 / 1600 BPI, 60 HZ / 115 V

Available on special request only.

## 548 MAGNETIC TAPE DRIVE 800 / 1600 BPI, 45 IPS, 60 HZ / 115 V

Available on special request only.

## 549 3 DENSITY OPTION FOR ND 537 STC MAGNETIC TAPE CONTROLLER

This option upgrades the ND 537 tape controller from 1600 / 6250 bpi to 800 / 1600 / 6250 bpi.

Prerequisite: ND 543 and ND 537 and ND 564

## 551 CARTRIDGE DISK CONTROLLER

Phased out, not available.

This controller may drive up to 4 units ND 511, or one ND 561 plus up to 3 units ND 511.

Prerequisite: ND 163 and ND 174 and ND 567.

## 552 33 / 66 MB DISK CONTROLLER

Phased out.

This controller may drive any combination of up to 6 units of type ND 513 or ND 514. See also ND 558.

Prerequisite: ND 163 and ND 164 and ND 174 and ND 567.

## 555 MAGNETIC TAPE CONTROLLER (HP)

Phased out.

## 556 MAGNETIC TAPE CONTROLLER (PERTEC)

Phased out, not available.

This controller may handle any combination of two Magnetic Tape formatters of type ND 534, ND 535 or ND 536.

Prerequisite: ND 163 and ND 567 and usually ND 170.

## 557 MAGNETIC TAPE CONTROLLER FOR ND-100 (PERTEC)

This controller may handle any combination of two Magnetic Tape formatters of type ND 534, ND 535 or ND 536.

Prerequisite: ND 100 and ND 038.

## 558 ECC DISK CONTROLLER

Phased out, not available.

Disk controller with automatic error correction. For ND 514, this controller increases storage capacity with 2/16 or 12.5 % as compared to ND 552. The controller may handle any combination of up to 4 units type ND 513, ND 514, ND 574, ND 576, ND 585, ND 586 or ND 587.

Prerequisite: ND 163 and ND 164 and ND 174.

## 559 DISK CONTROLLER, ECC, ND-100

Disk controller with automatic error correction. The controller may handle any combination of up to 4 units type ND 513, ND 514, ND 574, ND 576, ND 585, ND 586 or ND 587. The controller occupies two positions in the ND-100 rack.

OBS! Combination of different disk drives is only permitted according to current configuration rules (see chapter 3 "REFERENCE PRICELIST", chapter "SYSTEMS").

Prerequisite: ND 100 and ND 038.

## 560 MAGNETIC TAPE CONTROLLER 125 IPS, 1600 / 6250 BPI, ND-100

See ND 543

## 561 FIXED DISK CONTROLLER

A stripped down version of ND 551 used in ND 1205 / ND 1225 systems to drive a single unit type ND 571 Fixed Media Disk, 10 MB. For upgrading to ND 551, see ND 562.

Prerequisite: ND 163 and ND 174 and ND 567.

## 562 ND 561 TO ND 551 UPGRADING

Phased out, not available.

563 DISK CONTROLLER, ND-100

ND-100 series disk control module for the 10 MB disk drives, 2.5 MHz ND 511 (Cartridge) or ND 570 (Fixed). The control module may drive up to four drives, of which only one can be of type ND 570 (Fixed). ND 563 occupies one standard rack position.

Prerequisite: ND 100 and ND 038.

564 3 DENSITY OPTION FOR ND 543 STC MAGNETIC TAPE DRIVE

This option upgrades the ND 543 tape drive from 1600 / 6250 bpi to 800 / 1600 / 6250 bpi.

Prerequisite: ND 543 and ND 537 and ND 549

565 INTERFACE FOR 8 INCH WINCHESTER DISC

Single ND-100 card which includes both interface and controller.

567 DMA CONTROLLER

Phased out, not available.

This module is used to connect DMA controllers (disk, Magnetic Tape, etc.) to the I/O and DMA bus. The module requires one bus position.

Prerequisite: Defined by each device controller.

570 FIXED DISK 10 MB, ND-100

571 FIXED DISK 10 MB

Phased out.

Disk drive with 10 MB fixed disk. Average access time: 78 ms. Transfer rate: 312 KB / second (2.5 MHz). This unit is only available as part of the ND 1205 / ND 1225 systems, where it is mounted in the CPU cabinet. Product: CDC 9414.

Prerequisite: ND 561 or 551.

572 FIXED DISK DRIVE 150 MB

Disk drive with 150 MB fixed disk. This unit is mounted in a small ND-100 cabinet, ND 178. Average access time: 40 ms. Transfer rate 1.2 MB / second. SINTRAN "sees" the disk as two directories each of 75 MB, as do backup and recovery software.

Prerequisite: ND 558 or ND 559.

574 DISK DRIVE 288 MB

Disk drive with one 288 MB removable disk pack. Average access time: 40 ms. Transfer rate: 1.2 MB / second (9.8 MHz). One disk pack is included. For additional packs, see ND 575. Product: CDC 9766.

Prerequisite: ND 558 or ND 559.

575 DISK PACK 288 MB

Disk pack for ND 574.

576 DISK DRIVE 37 MB

Disk drive with one 37 MB removable disk pack. Average access time: 40 ms. Transfer rate: 1.2 MB / second (9.8 MHz). One disk pack is included. For additional packs, see ND 522. Product: CDC SMD 9762.

Prerequisite: ND 558 or ND 559.

579 FIXED DISK DRIVE 150 MB

150 MB fixed disc unit for mounting in ND 514. Same disk unit as in ND 572.

Prerequisite: ND 514.

585 CARTRIDGE DISK DRIVE, 30 MB

Disk drive with one 15 MB removable cartridge disk pack, and 15 MB fixed disk capacity. The disk drive will contain 2 directories each of 15 MB. Average access time: 40 ms. Transfer rate: 1.2 MB / second (9.8 MHz). One cartridge disk pack is included. For additional cartridge disk packs, see ND 588. Product: CDC CMD 9448.

NB! Because of a limitation to the number of directories, a maximum of 6 ND 585 may be connected to one SINTRAN-III system.

Prerequisite: ND 558 or ND 559.

586 CARTRIDGE DISK DRIVE, 60 MB

Disk drive with one 15 MB removable cartridge disk pack, and 45 MB fixed disk capacity. The disk drive will contain 4 directories each of 15 MB. Average access time: 40 ms. Transfer rate: 1.2 MB / second (9.8 MHz). One cartridge disk pack is included. For additional cartridge disk packs, see

## PRODUCT DESCRIPTION HARDWARE

ND 588. Product: CDC CMD 9448.

NB! Because of a limitation to the number of directories, a maximum of 3 ND 586 may be connected to one SINTRAN-III system.

Prerequisite: ND 558 or ND 559.

## 587 CARTRIDGE DISK DRIVE, 90 MB

Disk drive with one 15 MB removable cartridge disk pack, and 75 MB fixed disk capacity. The disk drive will contain 6 directories each of 15 MB. Average access time: 40 ms. Transfer rate: 1.2 MB / second (9.8 MHz). One cartridge disk pack is included. For additional cartridge disk packs, see ND 588. Product: CDC CMD 9448.

NB! Because of a limitation to the number of directories, a maximum of 2 ND 587 may be connected to one SINTRAN-III system.

Prerequisite: ND 558 or ND 559.

## 588 DISK PACK, 15 MB CARTRIDGE FOR ND 585 / 586 / 587

Prerequisite: ND 585 or ND 586 or ND 587

## 590 ND 552 TO ND 558 UPGRADING

Phased out, not available.

Prerequisite: ND 552.

## 591 ND 576 TO ND 514 UPGRADING

## 592 14 MB 8 INCH FIXED (WINCHESTER) DISC UNIT

Used in ND-100 Satellite/3 and ND-100 Satellite/5.

Prerequisite: ND 565

## 593 22 MB 8 INCH FIXED (WINCHESTER) DISC UNIT

Prerequisite: ND 565

## 597 MANUAL DISK SWITCH FOR ECC DISK DRIVES

Disk switch for manual switching of a 37 / 75 / 150 / 288 disk drive between 2 CPUs. The configurations must be prepared with regard to unit numbers, i.e. no switch position connects two drives with identical unit number to same controller. The two SINTRAN systems must be generated according to maximum disk drives that can be connected to the CPUs by switching the disk drives. The maximum number of disk drives per controller is still 4. One ND 597 is required for each disk drive to be switched.

NB! No cables included. See ND 598.

## 598 CABLES FOR ND 597

## 599 DISC SWITCH, SOFTWARE CONTROLLED

This switch can be used for all discs using the ND 559 controller.

## 603X VERSATEC LINE PRINTER LP-1150

Phased out.

500 lines / minute, 7 x 9 character dot matrix, 132 columns / line. Alphabet options (X): E (64 ASCII characters), N (96 ASCII characters). Paper width: 11".

Prerequisite: ND 652

## 604X VERSATEC PRINTER / PLOTTER 1110A

Phased out.

1000 lines / minute, 7 x 9 character dot matrix, 132 columns / line. Alphabet options (X): E (64 ASCII characters), N (96 ASCII characters). Paper width: 11".

Prerequisite: ND 652.

## 605X VERSATEC LINE PRINTER LP-1250

Phased out.

500 lines / minute, 16 x 16 character dot matrix, 132 columns / line. The main use of this printer is for proof-reading in connection with type-setting system (NORTEXT). Alphabet options (X): E (96 ASCII characters), N (96 ASCII) plus 41 special characters. The specials include Norwegian and Swedish letters. Paper width: 11".

Prerequisite: ND 652.

606X VERSATEC PRINTER / PLOTTER 1200A

Phased out.

500 lines / minute, 16 x 16 character dot matrix, 132 columns / line, 96 ASCII characters. Alphabet options: E, N, S. The Norwegian and Swedish options require code conversion in the SINTRAN-III driver.

Prerequisite: ND 652.

610 23 MB FIXED DISC DRIVE

Winchester technology. Capacity is formatted size. Used in ND-100 Compact Model I.

611 45 MB FIXED DISC DRIVE

Winchester technology. Capacity is formatted size. Used in ND-100 Compact Models II and III.

620 45 MB STREAMER TAPE DRIVE

Used in ND-100 Compact Models II and III.

651 CALCOMP 900 INTERFACE FOR NORD-10

Prerequisite: ND 040 or ND 163.

652 VERSATEC CONTROLLER DMA FOR NORD-10

Prerequisite: ND 163 and ND 174 and ND 567.

653 PARALLEL OUTPUT I/O INTERFACE FOR NORD-10

A general multipurpose interface. Has been used for Data Products, Centronix, CDC 9316 printers.

Prerequisite: ND 040 or ND 163 or ND 858.

654 CALCOMP 500 INTERFACE

Prerequisite: ND 040 or ND 163 or ND 858.



## 655 PARALLEL INTERFACE FOR TERMINET 340

Prerequisite: ND 040 or ND 163 or ND 858.

## 673 CONRAC 19" RGB MONITOR

Phased out, not available.

Optional unit in connection with ND 676 NORDCOM Color Terminal Controller (NCT).

Prerequisite: ND 676 or ND 580.

## 676 NORDCOM COLOUR TERMINAL CONTROLLER (NCT)

Phased out.

Replaced by ND 680. For upgrading of installed units from ND 676 to ND 680, see ND 683.

Prerequisite: ND 260 or ND 271 or ND 272 or ND 362.

## 677 NCT KEYBOARD

Keyboard option for ND 680 or ND 676.

## 678 NCT JOYSTICK

Phased out.

## 680 NORD COLOUR TERMINAL CONTROLLER (NCT)

Together with an RGB monitor and keyboard, this control unit forms a semigraphic display terminal for presentation of alphanumeric or graphic symbols. All symbols are contained in a writable control store. Matrix size 8 x 8, 8 x 12 or 8 x 16 dots. 64 characters per line. Program controlled selection of 16 out of 4096 possible color shades. Options: Monitor ND 673, Keyboard ND 677, Trackerball ND 682.

Prerequisite: ND 260 or ND 271 or ND 272 or ND 362.

## 681 NCT TRACKERBALL CONTROLLER

Optional module for ND 680 NCT Controller required for connection of ND 682 NCT Trackerball.

Prerequisite: ND 680.

## 682 NCT TRACKERBALL

Unit containing a trackerball, marker generator, position register with program readout and read interrupt button.

Prerequisite: ND 681.

## 683 NCT UPGRADING

Upgrading kit for modification of ND 676 NCT Control to the new controller ND 680 with optional trackerball.

Prerequisite: ND 676.

## 701 SYNCHRONOUS MODEM CONTROLLER

Phased out.

Maximum speed 9600 baud CCITT V.24 (EIA RS-232 C).

## 702 ASYNCHRONOUS MODEM CONTROLLER

Phased out, not available.

Replaced by ND 711

## 705 DECWRITER MODEM OPTION

Phased out.

Modem option for ND 206.

## 706 NTB TELEPRINTER INTERFACE 1/4 PLUG

A receive only interface for permanently connected lines. Used in connection with typesetting system (NORTEXT). Modified ND 253, 85 Baud, 40 mA / 120V.

Prerequisite: ND 163 or ND 858.

## 708 NTB TELEPRINTER INTERFACE 3/4 PLUG

A receive only interface for permanently connected lines. Used in connection with typesetting system (NORTEXT). Modified ND 253, 85 Baud, 40 mA / 120V.

Prerequisite: ND 163 or ND 858.

## 711 ASYNCHRONOUS MODEM CONTROLLER, 2 LINES

Phased out.

Programmable number of start / stop bits and speed range from 50 to 9600 baud. CCITT V.24 (EIA RS-232 C).

Prerequisite: ND 040 or ND 163

## 720 HDLC DMA INTERFACE

Phased out.

Interface module with CCITT X.21 procedure in hardware. The module uses the DMA bus and performs dynamic linking of buffers for continuous transmission at full speed. Transmission speed 19.2 or 307.2 Kbaud full duplex. The ND 720 is microprogram controlled for NORD-NET communication only. For communication to IBM, use ND 722 with HASP microprogram. For communication to others, contact the Corporate Marketing Department. Options: ND 721 HDLC Load Module.

Prerequisite: ND 163.

## 721 HDLC LOAD MODULE

Phased out, not available.

Optional module for ND 720 HDLC interface for initial loading of program and data from remote master CPU.

Prerequisite: ND 720.

## 722 HASP DMA INTERFACE

Phased out.

Prerequisite: ND 163.

## 723 HDLC I/O INTERFACE

Phased out.

HDLC interface for programmed I/O. CCITT X.21 procedure is performed by the interface module. Example of use is in terminal concentrator (ND 1110 system) where transmission speed is limited by telephone line and CPU load is no problem. The ND 723 is CPU program controlled. All Remote Job Entry packages except ND 10063 can be used. For ND 10063, use the ND 722 HASP DMA Interface. For upgrading to ND 720, see ND 724.

Prerequisite: ND 040 or ND 163.

724 ND 723 TO ND 720 UPGRADING

Phased out.

726 MEGALINK, NORD-10/S

Available on special request only.

Interface for communication between two CPUs. HDLC format but with additional signal for synchronization. Speed up to 1 Megabit full duplex. Max distance between the two CPUs is 30 meter at 1 Mbits / sec, 60 meter at 500 Kbits / sec, etc.

Prerequisite: ND 163

730 HDLC DMA INTERFACE FOR ND-100

Interface module with CCITT X.21 procedure in hardware. The module uses the DMA bus and performs dynamic linking of buffers for continuous transmission at full speed. Transmission speed 19.2 or 307.2 Kbaud full duplex. The ND 730 is microprogram controlled for NORD-NET communication only.

Prerequisite: ND 100 and ND 038

731 HDLC UPGRADE

UPGRADE FROM ND 730 TO ND 733

732 HASP DMA INTERFACE FOR ND-100

733 HDLC DMA INTERFACE WITH AUTO LOAD FOR ND-100

Interface module with CCITT X.21 procedure in hardware. The module uses the DMA bus and performs dynamic linking of buffers for continuous transmission at full speed. Transmission speed 19.2 or 307.2 Kbaud full duplex. The ND 733 is microprogram controlled for NORD-NET communication only. ND 733 includes the remote load function for initial loading of program and data from remote master CPU.

Prerequisite: ND 100 and ND 038

734 MEGALINK, ND-100

Interface for communication between two CPUs. HDLC format but with additional signal for synchronization. Speed up to 1 Megabits / second full duplex. Max distance between the two CPUs is 30 meter at 1 Mbits / sec, 60 meter at 500 Kbits / sec, etc.

Prerequisite: ND 038 or ND 055

#### 750 LIMITED DISTANCE MODEM

Limited distance modem for distances up to 10 km. Max distances are 0.9 km for 9600 bps, 1.5 km for 4800 bps, 3 km for 2400 bps, 5 km for 1200 bps, 10 km for 600 bps.

NB! No cables included.

Prerequisite: ND 711 or ND 271 or ND 272 or ND 281

#### 763 TELEX LINE ADAPTER, 1 LINE

Phased out.

Free standing unit complete with line driver / receiver, filter, automatic switch for connection of back-up teleprinter, control panel and power supply.

Prerequisite: ND 765.

#### 765 TELEX CONTROLLER, 2 LINES

Phased out, not available.

Dual automatic dial-up or answer back control for public telex network. This product should be used with extreme caution. Standards for START / STOP bits and dialup sequence vary between countries and even inside Norway (Bergen is different). Note also that the user needs a license from the local telephone company, so please check this.

Prerequisite: ND 163 or ND 858.

#### 800 CAMAC CRATE CONTROLLER CC-10

Module made to the CAMAC standard and installed in a standard CAMAC crate. A maximum of 16 crates may be daisy-chained (limited by 4 address bits). Option: ND 801 CAMAC DMA Controller.

Prerequisite: (ND 800 or ND 802) and ND 803.

#### 801 CAMAC DMA CONTROLLER

Option for adding direct memory access as a functional feature in the CAMAC crate and to be used by the CAMAC modules.

Prerequisite: ND 800 and ND 804.

## PRODUCT DESCRIPTION HARDWARE

## 802 CAMAC CRATE CONNECTOR

Internal wiring in the CPU cabinet for the CAMAC option.

Prerequisite: ND 010 or ND 165.

## 803 CAMAC CABLE, 2 METRES

Connection between CAMAC crates or CAMAC crate and the internal wiring in the CPU cabinet.

## 804 CAMAC DMA CABLE, 0.4 METRES

Connection between the CAMAC DMA CONTROLLER and ND 800.

## 805 16 + 18 CAMAC CRATE CONNECTOR

Internal wiring in the CPU cabinet for CAMAC.

Prerequisite: ND 010 or ND 165 or ND 180

## 806 BUS DRIVER, ND-100 TO CAMAC CRATE, 16 + 18

Consists of ND 180, ND 805.

Prerequisite: ND 038 and ND 100

## 807 BUS DRIVER ND-100 TO 3 BURNDY PLUGS

Consists of ND 180, ND 172

Prerequisite: ND 038 and ND 100

## 810 PROCESS DIGITAL INPUT

12 bit optically coupled digital (binary) input. The module also includes a 12 bit comparison register. Interrupt is generated if any of the 12 input lines changes. Maximum terminal voltages: -5 V, +30 V. Maximum common mode voltage +/- 30 V.

Prerequisite: ND 163 or ND 858.

## 811 PROCESS DIGITAL OUTPUT

16 bit optically coupled digital (binary) outputs. Maximum output current: 100 mA, non inductive load. Switching time with  $V = 30\text{ V}$ ,  $R = 1\text{ KOHM}$  is less than 30 microseconds.

Prerequisite: ND 163 or ND 858.

## 812 DIGITAL INPUT TTL, 16 BITS

16 bit digital input module with TTL-compatible differential line signals using DM-8820 / 8831 line drivers / receivers. The module also has 4 handshake signals; input strobe (to buffer register), request (ready for new frame), input status bit (external interrupt) and output control signal with program controlled on / off. Can be connected to ND 813 for CPU-CPU communication.

Prerequisite: ND 163 or ND 858.

## 813 DIGITAL OUTPUT TTL, 16 BITS

16 bit digital output module with TTL-compatible differential line signals using DM-8820 / 8831 line drivers / receivers. The module also has 4 handshake signals; input request (ready for new frame), output clock (data ready), input status bit (external interrupt) and output control signal with program controlled on / off.

Prerequisite: ND 163 or ND 858.

## 814 DIGITAL INPUT, DR-11C STANDARD

Variant of ND 812 with interface signals compatible with Digital Equipment's DR-11C interface. For two-way communication one pair of ND 814 / ND 815 is required.

Prerequisite: ND 163 or ND 858.

## 815 DIGITAL OUTPUT, DR-11C STANDARD

Variant of ND 813 with interface signals compatible with Digital Equipment's DR-11C interface. For two-way communication one pair of ND 814 / ND 815 is required.

Prerequisite: ND 163 or ND 858.

## PRODUCT DESCRIPTION HARDWARE

## 816 EXTERNAL INTERRUPT MODULE

Available on special request only.

The ND 816 is a device whereby external sources may signal interrupts to a NORD-10/S CPU. The module accepts up to 16 external interrupt sources.

Prerequisite: ND 163 or ND 858.

## 820 ANALOG TO DIGITAL CONVERTER

Phased out.

Resolution: 12 bits. 8 channels. Input voltage +/- 10V differential.  
Conversion time: 25 microseconds. Total data acquisition: 35 microseconds.

Prerequisite: ND 163 or ND 858.

## 840 REMOTE DEVICE DRIVER

Available on special request only.

Line driver / receiver set which permits a line-printer to be placed up to 100 meters from the CPU. Standard interface.

Prerequisite: ND 841 and ND 197.

## 841 CARD FRAME FOR ND 840

Available on special request only.

Housing and power unit for the device end of ND 840. Capacity is 4 ND 840 modules.

## 845 TERMINAL SWITCH PANEL

Terminal switch panel for switching of 24 current loop lines and 8 RS 232 lines between 2 CPUs.

NB! No cables included.

## 846 DEVICE SWITCH FOR MAGNETIC TAPE AND LINE-PRINTER

A magnetic tape drive or a line-printer may be switched between 2 CPUs using the ND-846.

NB! No cables included. See ND 847 and ND 848.



847 COMPLETE CABLES FOR ND 846 USED AS MAG-TAPE SWITCH

848 COMPLETE CABLES FOR ND 846 USED AS LINE-PRINTER SWITCH

849 TERMINAL CROSS COUPLER

Coupling box for connection of terminals to interfaces. ND 849 contains plugs for 16 terminals.

NB! No cables included.

850 16 BIT UNIVERSAL DMA INTERFACE

Available on special request only.

The ND 850 is designed to allow easy DMA interfacing to NORD-10/S I/O system. The interface offers bidirectional transfer capability and user defined Control and Status signals. The ND 850 makes it possible for a user to interface the NORD-10/S using available space in an existing I/O crate.

Prerequisite: ND 163.

851 DMA DIFFERENTIAL TRANSCEIVER

Available on special request only.

The ND 851 converts the ND 850 single ended signals to differential using line drivers and receivers, allowing user designed equipment to be located external to the ND computer system. The combination ND 850 / ND 851 may be used to link two NORD-10/S computer systems giving a high speed transmission capability with low CPU overhead.

Prerequisite: ND 850.

852 UNIVERSAL DMA INTERFACE AND DIFF. TRANSCEIVER FOR ND-100

Available on special request only.

One ND-100 board. 16 bits. Fully compatible with ND 850 / ND 851. Max speed ca 1.5 MB / second.

853 ASYNCHRONOUS / SERIAL ADAPTER FOR UNIVERSAL DMA

Available on special request only.

Prerequisite: ND 850.

## PRODUCT DESCRIPTION HARDWARE

## 854 PIOC FOR X.25, 4 LINES

Phased out, not available.

ND 857 PIOC plus software for X.25.

## 855 GENERAL PURPOSE INTERFACE BUS CONTROLLER

The General Purpose Interface Bus (GPIB) is an IEEE standard defined for use as a Digital Interface for Programmable Instrumentation.(ANSI / IEEE Std. 488-1978). It is also an IEC standard (IEC-625). The interface bus is also known as GPIB, HP-IB, ASCII-bus, IEEE-488-bus and IEC-bus.

Prerequisite: ND 100 or ND 037 or ND 037 or ND 049 or ND 056

## 856 GENERAL PURPOSE INTERFACE BUS REMOTE OPTION

Allows the IEEE standard limit of 20 metres total length to be exceeded. Using this option, part of the bus may be up to 100 metres away from the ND-100.

Prerequisite: ND 855

## 857 PROGRAMMABLE INPUT / OUTPUT CONTROLLER (PIOC), BASIC SYSTEM

Phased out, not available.

PIOC for 4 lines (ND-100) including basic software.

## 858 ADAPTER FOR NORD-10/S INTERFACES ON ND-100

ND 858 is a module for the ND-100 series with sockets for two standard NORD-10 interface cards. Existing interfaces which may be connected to ND-100 via ND 858 are: ND 253, ND 351, ND 352, ND 450, ND 457, ND 458, ND 459, ND 461, ND 653, ND 654, ND 655, ND 701, ND 706, ND 765, ND 810, ND 811, ND 812, ND 813, ND 814 or ND 815.

N.B.! THIS CARD OCCUPIES 2 PHYSICAL CARD POSITIONS IN ALL CARD RACKS / CPUS except ND-100, SATELLITE/5 and SATELLITE/9 models.

Prerequisite: ND 100 and ND 038.

## 862 DFS INTERFACE (MADE FOR GECO)

Available on special request only.

865 PIOC HARDWARE INTERFACE BOARD, 1/2 MB MEMORY

866 TCU/3

A terminal concentrator / multiplexer for up to three terminals over one X.21 line.

868 TCU/7

A terminal concentrator / multiplexer for up to seven terminals over one X.21 line.

872 POWER DISTRIBUTION, 10 KVA

873 CABLES FOR ND 872 (10 CABLES)

874 POWER DISTRIBUTION, 20 KVA

875 CABLES FOR ND 874 (20 CABLES)

876 POWER DISTRIBUTION, 40 KVA

877 CABLES FOR ND 876 (30 CABLES)

881 POWER SUPPLY 150A / 5V

882 STANDBY POWER SUPPLY 25A / 5V, 4A / 12V

883 POWER SUPPLY 220V / 5A

885 CONTROL THERMOSTAT WITH MANUAL RESET

## PRODUCT DESCRIPTION HARDWARE

889 POWER SUPPLY FOR ND-SATELLITE AND COMPACT, 220 V / 50 HZ

895 ISOLATION TRANSFORMER, 915 VA  
120 / 240 V, 50 / 60 Hz single phase.

896 ISO-TRAFO 1.8 KVA  
Phased out, not available.  
Isolation transformer, 1800 VA for 220 / 240 V AC.

897 ISO-TRAFO 2.5 KVA  
Phased out, not available.  
Isolation transformer, 2500 VA for 220 / 240 V AC.

899 MAINS FILTER FOR ND-100, 6 MODULE CABINET  
For deliveries in Germany.

900 ISO-TRAFO 5 KVA  
Phased out, not available.  
Isolation transformer, 5000 VA for 220 / 240 V AC.

902 INTERFACE FOR SAAB-SCANIA SP1  
Available on special request only.

903 MODIFIED 1026-BOARD FOR CENTRONICS  
Available on special request only.

905 ND 663 MODIFIED FOR INVERSE VIDEO INSTEAD OF UNDERLINE  
Available on special request only.

906 ND 253 MODIFIED FOR SILENT 700 AS CONSOLE

Available on special request only.

907 ND 253 MODIFIED FOR EXTERNAL SOURCE 88-89 / 90-91

Available on special request only.

908 TAPERREADER FOR NORCONTROL

Available on special request only.

913 HP OPTICAL MARK READER 7260

Available on special request only.

914 ND 702 MODIFIED FOR ND 913

Available on special request only.

917 WATCHDOG 1113 WITH COUPLING

Available on special request only.

930 ISO-TRAFO 1.5 KVA

Isolation transformer, 1500 VA for 220 / 240 V AC.

931 ISO-TRAFO 2 KVA

Isolation transformer, 2000 VA for 220 / 240 V AC.

932 ISO-TRAFO 3.3 KVA

Isolation transformer, 3300 VA for 220 / 240 V AC.

940 UPGRADING FROM ND 585 TO ND 586

## PRODUCT DESCRIPTION HARDWARE

941 UPGRADING FROM ND 586 TO ND 587

**PRODUCT DESCRIPTION  
SOFTWARE**

**84-01**

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1 PRODUCT DESCRIPTION SOFTWARE

## 10004 NORD-50 PROGRAM PACKAGE

The ND 10004 contains a set of subsystems running in the NORD-10 CPU together with all other subsystems under the operating system.

Consisting of: N-50 ASSEMBLER  
N-50 LOADER  
N-50 FORTRAN  
N-50 LIBRARY  
N-50 MONITOR  
N-50 BRF EDITOR

## 10005 SUBSYSTEM PACKAGE

A set of subsystems for ND computers running SINTRAN-III.

32 bit floating format.

Consisting of: NORD RELOCATING LOADER  
MAC  
FMAC  
QED EDITOR  
NPL COMPILER  
BRF EDITOR  
FILE EXTRACT  
LOOK FILE

## 10007 SCIENTIFIC SUBROUTINE PACKAGE

The ND 10007 is a collection of FORTRAN subroutines for statistics, matrix manipulation and other mathematics. All subroutines are compiled as library routines.

48 bit floating format.

## 10008 SIBAS DATABASE MULTI-USER SYSTEM

Phased out.

## 10009 SCIENTIFIC SUBROUTINE PACKAGE

The ND 10009 is a collection of FORTRAN subroutines for statistics, matrix manipulation and other mathematics. All subroutines are compiled as library routines.

32 bit floating format.

## 10010 CALCOMP PLOT PACKAGE

Designed for the drum type incremental plotters.

48 bit floating format.

Program size: 12 KB.

## 10011 VERSAPLOT PLOT PACKAGE

48 bit floating format.

## 10012 PLOT-10 FOR NORD-10

The ND 10012 is a set of subroutines for graphic programming (both READ and WRITE) on Tektronix 4010 and 4014.

48 bits floating format.

## 10013 NSHS - ND SCREEN HANDLING SYSTEM

This system enables users to define screen picture formats interactively at display terminals with cursor control, and to use these for input / output in application programs. 48 or 32 bit floating format.

## 10014 FLOCON / VS SYSTEM

FLOCON can read most IBM diskette formats and also produce output in IBM 3740 EBCDIC or ASCII format. It may also be used as a common operator console for several ND IDT Remote Job Emulator packages.

## 10015 ND-500 VERSAPLOT 07

## 10016 IBM 3270 EMULATOR

The ND 10016 is designed and implemented according to the specifications in IBM 3270 Information Display System Component Description. The IBM 3270 is emulated on a NORD-10 / ND-100 with Tandberg displays (special version) and line-printer as terminals. The 3270 Card Reader has not been emulated. The emulator employs the EBCDIC version of the line protocol vis a vis the IBM host computer. It is written in the assembly language MAC and consists of four assembly parts.

Program size: 32 KB.

## 10018 RPG-I

ND RPG-II is a one pass compiler and a set of library routines which constitute the RPG-II run-time system.

## 10020 COBOL

Phased out, available.

## 10021 FLOCON / RT SYSTEM

The ND 10014 can handle most of IBM diskette formats as input and also produce output in IBM 3740 EBCDIC or ASCII format. It may also be used as a common operator console for several ND IDT Remote Job Emulator packages. ND 10021 runs under SINTRAN-III/RT.

Prerequisite: ND 10047

## 10022 SINTRAN-III UTILITY PROGRAMS

The ND 10022 contains a set of subsystems for ND-computers running SINTRAN-III.

Consisting of: DITAP CONVERSION PROGRAM  
LIST ACCOUNTING  
FLOPPY-MONITOR  
FILE SYSTEM INVESTIGATOR  
MEMORY DUMP  
CREATE MEMORY DUMP FLOPPY  
DMAC  
PERFORM  
PERFORM-LIBRARY  
COP-VERIFY  
MCOPI-HP  
MCOPI-TANDBERG

## 10023 ND FORTRAN

ND FORTRAN is implemented according to FORTRAN standard ANS X3.9.1978 with some minor deviations. The compiler has an extensive set of commands, and the symbolic debugger provides a powerful on-line debugging system.

48 bit floating format.

## 10024 ND BASIC

The ND 10024 contains facilities for linking to external subroutines including FORTRAN and MAC language libraries.

48 bit floating format.

## 10025 SORT SYSTEM

Phased out.

## 10026 CDC 200 USER EMULATOR

The ND 10026 is a remote batch terminal to the Control Data Corporation CYBER / 6000 series computers. The terminal is available in two forms:

- a real time system for conventional card-reader input and line-printer output.
- a SINTRAN-III virtual storage system which in addition to card reader and line-printer also allows the user to utilize disk files for input and output.

The SINTRAN-III virtual storage version will automatically decide whether the operating system is SINTRAN-III virtual storage or RT and by this prevent execution of features not allowed in SINTRAN-III/RT. Initially the emulator type is ASCII, but it can be changed to BCD by command. The stand alone versions are separated in ASCII and BCD versions.

Program size: 16 KB.

## 10027 HONEYWELL GERTS 115 EMULATOR

The ND 10027 is a remote batch terminal to the Honeywell 6000 systems, communicating through a data-net 355 or 305 communication processor. The terminal is available in two forms:

- an RT-system for card-reader, tape-reader or floppy
- a SINTRAN-III virtual storage system which, in addition allows the user to utilize disk files for input and output.

Program size: 16 KB.

## 10028 IBM HASP WORK STATION (SYNCHRONOUS MODEM)

The ND 10028 is a remote batch terminal to IBM 360 and 370 systems. The terminal runs under the operating system SINTRAN-III virtual storage, or may run under SINTRAN-III/RT. Local commands are implemented to specify devices for the input and output streams. With a file system, it may also be possible to use mass storage files instead of peripheral units. From the console of the terminal, the operator may send status request, job manipulation commands, etc., independent of the batch input and output.

Program size: 26 KB.

## 10029 UNIVAC NTR EMULATOR (VS)

The ND 10029 is a program system for remote batch communication to a UNIVAC 1100 series computer where the ND computer is regarded as a batch terminal and 1100 as the central site. The communication procedure conforms to the standard UNIVAC NTR (Nine Thousand Remote Full Duplex Communication), and the NTR handler in 1100 is supplied by UNIVAC. In addition to the original NTR specifications, a real console function is implemented in the NTR emulator to ease the operation of the terminal.

Program size: 16 KB.

#### 10030 IBM 2780 / 3780 EMULATOR

The ND 10030 is a remote batch terminal to IBM 360 and 370 systems. The terminal is available in two forms:

- an RT system for conventional card reader input and line printer output.
- a SINTRAN-III virtual storage system which in addition to card reader and line-printer also allows the user to utilize disk files for input and output.

Program size: 16 KB.

#### 10031 UNIVAC DCT 2000 EMULATOR (VS)

The ND 10031 is a remote batch terminal to the UNIVAC 1106 / 1108 / 1110 computers. The terminal may be run on a memory-only RT-system, or under SINTRAN-III virtual storage which allows the user to use disk files for input and output.

Program size: 9 - 16 KB.

#### 10032 PLOT-10 FOR NORD-10

The ND 10032 is a set of subroutines for graphic programming (both READ and WRITE) on Tektronix 4010 and 4014.

32 bit floating format.

#### 10033 ND FORTRAN

The ND 10033 is implemented according to FORTRAN standard ANSI X3.9.1-78 with some minor deviations. The compiler has got an extensive set of commands, and the symbolic debugger provides a powerful on-line debugging system.

32 bit floating format.

#### 10034 ND BASIC

The ND 10034 contains the facility for linking external subroutines including FORTRAN and MAC language libraries.

32 bit floating format.

## 10044 SUBSYSTEM PACKAGE

The ND 10044 contains a set of subsystems for ND-computers running SINTRAN-III.

48 bit floating floating format.

Consisting of: MACF

- MAC
- QED EDITOR
- NPL COMPILER
- RELOCATING LOADER
- BRF EDITOR
- FILE EXTRACT
- LOOK FILE

## 10046 NORD COLOUR TERMINAL SOFTWARE

The ND 10046 contains service routines for the NORD Colour Terminal (NCT).

## 10047 SINTRAN-III / RT OPERATING SYSTEM

The ND 10047 is a memory based operating system, i.e. not requiring a mass-storage device.

NB! Hardware configuration and the software facilities must be specified on separate order form.

Program size: 28 - 44 KB, configuration dependant.

## 10048 SINTRAN-III/VS OPERATING SYSTEM

The SINTRAN-III/VS (Virtual Storage) Operating System is a mass storage operating system for NORD-10 and NORD-10/S computers. Last version developed and supported is H.

NB! Hardware configuration and the software facilities must be specified on separate order form.

## 10049 ND SPOOLING SYSTEM

The ND Spooling System allows the spooling of output files. I.e. several users may write to the same physical printer concurrently.

The spooling system is included in the basic systems.

## 10050 ND-NET

ND-NET is a software package enabling ND computers to be linked together in a distributed processing network.

Minimum memory size of a SINTRAN-III virtual storage system with ND-NET is 96 KB and for a SINTRAN-III/RT system 40 KB.

NB! ND-NET is an addition to SINTRAN-III and must be ordered in addition to the operating system.

10053 ND DATA ENTRY SYSTEM

The ND 10053 contains a set of software modules offering a flexible and easy way of entering and validating data.

10054 TRANSACTION PROCESSING SYSTEM (TPS)

The ND 10054 contains a set of cooperating modules as a set of real time tasks under the SINTRAN-III virtual storage operating system, conforming a TP-monitor system.

48 bit floating format.

10056 UNIVAC NTR EMULATOR (RT)

The ND 10056 is a program system for remote batch communication to a UNIVAC 1100 series computer where the ND computer is regarded as a batch terminal and 1100 as the central site. The communication procedure conforms to the standard UNIVAC NTR (Nine Thousand Remote Full Duplex Communication), and the NTR handler in 1100 is supplied by UNIVAC. In addition to the original NTR specifications, a real console function is implemented in ND NTR to ease the operation of the terminal.

Program size: 16 KB.

Prerequisite: ND 10047

10057 UNIVAC DCT 2000 EMULATOR (RT)

The ND 10056 is a remote batch terminal to the UNIVAC 1106 / 1108 / 1110 computers. The terminal is run under SINTRAN-III/RT.

Prerequisite: ND 10047

10058 SIMULA FOR ND-100 / NORD-10

The ND 10058 is a general purpose high level language developed by the Norwegian Computing Center (NCC). The compiler occupies 428 KB of programs plus dynamically allocated data, minimum 4 KB. The program consists of several independent phases, varying from 10 to 20 KB, each performing different compilation tasks.

48 bit floating format.

## 10059 HONEYWELL VIP 7750 EMULATOR

The ND 10059 is a remote batch terminal to Honeywell Bull 6000 or equivalent.

48 bit floating format.

## 10060 PLOT-10 FOR NORD-50

The ND 10060 is a set of subroutines for graphic programming (both PEAD and WRITE) on Tektronix 4010 and 4014.

## 10061 UTS-400 EMULATOR

Emulates a UNIVAC UTS-400 terminal on an ND system. Uses terminals of type Tandberg 2115 and 2215.

## 10063 IBM HASP WORK STATION (DMA)

The ND 10063 is a remote batch terminal to IBM 360 and 370 systems. The terminal runs under SINTRAN-III virtual storage or SINTRAN-III/RT, using ND 722 HASP DMA Interface.

48 bit floating format.

## 10067 FORTRAN RUNTIME SYSTEM

The ND 10067 contains the runtime part of ND FORTRAN system (ND 10023).

48 bit floating format.

## 10068 VERSAPLOT PLOT PACKAGE

The ND 10068 converts user plotting commands into ordered raster scan output for driving Versatec Electrostatic Plotters 1110A, 1150, 1200A and 1250.

32 bit floating format.

## 10069 ND IDT CDC 200 USER MULTIDROP EMULATOR

The ND 10069 gives the users full interactive access to CDC / 6000 computers in addition to the usual batch input and output features. Up to 11 interactive terminals can be connected. In addition a master terminal gives the user the same RJE features as ND 10026, CDC 200 USER. The emulator is based on the CDC line protocol MODE 4A. The emulator supports only the ASCII version of this protocol. Operating system on CDC / 6000 must be SCOPE or NOS / BE and the subsystem INTERCOM or NOS with the subsystem NAM.



48 bit floating format.

Program size: 20 - 28 KB depending on no. of terminals

10070 SCIENTIFIC SUBROUTINE PACKAGE, NORD-50

The ND 10070 is a collection of FORTRAN subroutines for statistics, matrix manipulation and other matematics. All subroutines are compiled as library routines.

10072 DATAON

The ND 10072 is a general purpose data conversion utility system which facilitates conversion from one type of data representation to another. By a repertoire of simple commands you can submit the mapping tables, record and file descriptions needed for a certain application. This implies that you can decode confidential data, convert from EBCDIC to ASCII format, extract partial records within a file etc. In addition, the ND 10072 provides you with a simple report generation feature allowing you to inspect records.

48 bit floating format.

10073 INDEXED SEQUENTIAL ACCESS METHOD FOR ND-100 / NORD-10

The ND 10073 contains a set of subroutines designed to allow both sequential and random processing of fixed length data records placed on a SINTRAN file. Six different keys is allowed in each file. Duplicate keys is also allowed.

10075 SORT-II SYSTEM (MSD-SORT)

Phased out.

10076 ND-100 PASCAL

The ND 10076 is a programming language suitable for teaching programming as a systematic discipline. The form of expressions are copied from ALGOL 60. The implementation is based on the definition in Niklaus Wirth: The Programming Language Pascal (1973). Minor changes have been done to adapt it to the proposed Pascal Standard submitted to BSI / ISO.

48 bit floating format.

10079 NOTIS-WP - WORD PROCESSING FOR ND-100

The ND 10079 contains two parts:

The Text Editor - NOTIS-WP  
The Text Formatter - NOTIS-TF

The text editor is designed especially for the editing of text files. It is a full screen editor for asynchronous terminals. Whilst NOTIS-WP may run on any ND supported terminals, it is especially tailored for use on the ND 246 and ND 248 NOTIS terminals. These terminals are full word processing terminals, with individual keys for all important functions.

Text may be added, modified, inserted, replaced and deleted by using the cursor movement controls and a few self-explanatory, easy-to-learn commands.

The text formatter takes one or more unformatted files as input and produces as output a formatted file which can then be copied to a suitable output device, or inspected from the terminal. The text formatter commands are embedded in the text file as directives.

10080 PED - PROGRAM EDITOR FOR ND-100

The ND 10080 is a text editor designed especially for the editing of computer source programs. It is a VDU page mode editor for asynchronous terminals. Text may be added, modified, inserted, replaced and deleted by using the cursor movement controls and a few self-explanatory, easy-to-learn commands. Available with English, Norwegian and Swedish text.

10112 TEST PROGRAMS FOR NORD-50

Consisting of: TINST-50  
TMEM-50  
TREG-50  
NORD-50 TEST SYSTEM  
SEKUND  
JTID  
ITEST  
IRMD  
FTEST  
DFTEST  
HAMB-MET  
TCOR-NGO  
TCOR-DATA  
N50INITIALIZE  
N50TEST-BATCH  
N50TESTP-ASCOL

10113 TEST AND UTILITY PROGRAMS

Phased out.

10114 TEST AND UTILITY PROGRAMS

Phased out.

## 10115 TEST AND UTILITY PROGRAMS

Phased out.

## 10116 TEST AND UTILITY PROGRAMS

Phased out.

## 10124 GPM - GENERAL PURPOSE MACRO PROCESSOR

The ND 100124 is a general purpose macro compiler. Input to GPM is a character string, in which macro calls may occur. GPM copies the input character unmodified to the output string, with the exception of the macro calls which yield their values instead.

## 10130 X-MESSAGE

An inter-task communication system for use under a disc-based SINTRAN-III. A task may be a driver, process, RT program etc.

## 10133 ND-100 PASCAL

The ND 10133 is a programming language suitable for teaching programming as a systematic discipline. The form of expressions are copied from ALGOL 60. The implementation is based on the definition in Niklaus Wirth: The Programming Language Pascal (1973). Minor changes have been done to adapt it to the proposed Pascal Standard submitted to BSI / ISO.

32 bit floating format.

## 10134 COBOL RUNTIME SYSTEM

Phased out.

## 10135 NSHS RUNTIME SYSTEM

The ND 10135 contains the runtime part of the NSHS (ND 10013).

## 10136 FORTRAN RUNTIME SYSTEM

The ND 10136 contains the runtime part of the ND FORTRAN system (ND 10033).

32 bit floating format.

## 10137 VERSAPLOT-07 PLOT PACKAGE

48 bit floating format for ND-100.

## 10141 SIBAS LOAD / UNLOAD MODULE

The ND 10141 will use two SIBAS systems to copy realm by realm from a source database to a destination database.

## 10142 DDPP

DDPP is a program package for statistical analysis and data handling. The system may work on different types of numeric and text data, and uses a simple interactive command language.

48 bit floating format.

Documentation: ND- . DDPP Håndbok (EDB-senteret,  
University of Oslo)

## 10145 MERCUR (SWEDISH VERSION)

The ND 10145 is basically a high-level language for creation, manipulation and presentation of tabular information. However, the main objective with this language is to offer a powerful tool for building and running financial models on ND computers.

Documentation: MERCUR - A Language for Planning and  
Analysis - User's Manual

## 10152 NOTIS-IR - INFORMATION STORAGE AND RETRIEVAL MODULE

The ND 10152 is a system for the storage and retrieval of text documents. Documents may be retrieved by referring any part of their content. The documents may be retrieved through various search keys, and keys or indices may be freely chosen. Retrieval is extremely fast.

## 10166 SIBAS-II

The ND 10166 is a general data base management system which

- offers complete separation of the Data Description Language (DDL) and the Data Manipulation Language (DML)
- allows several access paths to records, enabling different application programs to use stored information as required
- includes a powerful restructuring facility which allows the data base to be redefined for expansion, deletion and modification
- permits routine and before image logging as standard

The ND 10166 follows the CODASYL DBTG recommendations. SIBAS-II runs under SINTRAN-III.

10167 SIBIO

Special I/O-module for SIBAS.

10174 SINTRAN-III/VSE OPERATING SYSTEM

The SINTRAN-III/VSE (Virtual Storage Extended) is a mass storage based operating system for ND-100 Compact, ND-100 Standard and ND-100/CE systems. It handles up to 32 MB of physical memory.

NB! Hardware configuration and software facilities must be specified on separate order form.

10175 SINTRAN-III/VSE-500

The SINTRAN-III/VSE-500 (Virtual Storage Extended) is a mass storage based operating system for ND-500 systems. Replaced by ND 10576 SINTRAN-III/VSX-500.

NB! Hardware configuration and software facilities must be specified on separate order form.

Prerequisite: Any ND-500 system.

10176 COBOL FOR ND-100 / NORD-10

The ND 10176 conforms the ANSI X3-23-1974 Level One and contains many extensions from Level Two, thus providing large-scale business data processing capabilities to the mini-computer world.

Prerequisite: Hardware support for BCD-arithmetic.

10177 ND-500 COBOL

ND-500 COBOL conforms the ANSI X3-23-1974 Level One and contains many extensions from Level Two, thus providing large-scale business data processing capabilities to the mini-computer world.

Prerequisite: ND 073 BCD-Arithmetic for ND-500.

10178 SIEMENS EMULATOR

Standard for the German market.

10179 ND-100 SORT / MERGE SYSTEM

The ND 10179 is a program package which enables the user to sort and merge mass storage files, including magnetic tape files. The program handles three types of files: fixed length, variable length and text files in accordance with COBOL specifications.

The SORT / MERGE SYSTEM is available in two versions, as a SINTRAN-III subsystem and as a subroutine library callable from user programs.

Program size: 9 KB as subroutine pluss sort buffer  
(59 KB as subsystem).

Prerequisite: Hardware support for BCD-arithmetic.

#### 10183 HASP-II RJE SYSTEM

The ND 10183 is a software system designed for remote job entry to computer systems in the IBM 360 / 370 series. The system runs under the operating system SINTRAN-III virtual storage, and handles operations like spooling of I/O files, job priority scheduling, and assignments of peripherals. It is also possible to use disk files instead of the peripheral units.

Program size: 60 KB.

#### 10184 HASP-II DMA RJE SYSTEM

Same as ND 10183, but uses a DMA interface instead of a synchronous modem interface for faster transmission. The CPU is off-loaded and more power is available for other tasks running on the machine.

Program size: 60 KB.

#### 10185 ACCESS LEVEL 1 FOR ND-100

Access is ND's Query Language based on Query By Example. It is a high level database management language that provides a convenient and unified style for defining queries and updates to a database.

NOTIS-QL is an alternative name for ACCESS, used in the NOTIS Office Automation Concept. Here, ACCESS is used to construct, maintain and use data from user-defined tables. Used in conjunction with NOTIS-WP, repetitive correspondence may be produced. Using the statistical functions available in ACCESS, a powerful decision support tool is available.

#### 10186 FORTRAN RUNTIME SYSTEM

Runtime system for and part of ND 10191.

#### 10187 PASCAL FOR ND-500

ND-500 PASCAL fulfills all the requirements of the proposed ISO standard for PASCAL. Extensions to this standard are marked in the program listings produced by the compiler.

## 10188 FOCUS LEVEL 1 - SCREEN HANDLING SYSTEM FOR ND-100

FOCUS Screen Handling enables the user to define screen forms interactively and to use these forms for interactive data input and output from application programs.

## 10189 COBOL RUNTIME SYSTEM

Runtime system for ND-100 COBOL ND 10176, and a part of that product.

## 10190 ND-500 FORTRAN

The ND 10190 is based on the ANSI-77 standard (ANSI X3.9-1978). Also, those features of the ND FORTRAN products ND 10023 / 10033 which are compatible with, and in addition to ANSI-77, are implemented. The compiler generates compact code for optimal utilisation of the ND-500 computer.

## 10191 ND-100 / NORD-10 FORTRAN

The ND 10191 is based on the ANSI-77 standard (ANSI X3.9-1978). Also, those features of the ND FORTRAN products ND 10023 / 10033 which are compatible with, and in addition to ANSI-77, are implemented.

## 10193 NOTIS-RG FOR ND-100

NOTIS-RG is an interactive report definition and production system. The reports can be produced interactively, in batch or as mode jobs. The system is based on the COBOL WRITER specifications. Some of the features: Integrated with NOTIS WP, 0 - 9 break levels, selection criterias, sort on a large number of fields, extract specifications, computation on fields producing new fields which can be used in the report, and look-up file for text strings.

## 10195 DATA ENTRY SYSTEM II

An end-user system providing a flexible and simple way of entering and validating data. Uses SIBAS and NSHS.

## 10196 ND-100 APL

This APL has an integrated full screen editor for different terminal types, and an integrated file handling system. Most APL terminals can be used without modifications, but ND recommends the Tandberg TDV 2221 terminal, which can be bought from Tandberg.

48 bit floating format.

## 10197 SIBAS BACKEND COMMUNICATION MODULE

Enables configurations where application programs running in one CPU access a database on another CPU thereby supporting a multi-CPU configuration. Advantages are :

- Handles increased system load
- System may be run in a degraded mode in the event of a machine failure.

## 10199 X.25 PACKET AND LINK LEVEL

Runs under a disc-based SINTRAN system, and conforms to the CCITT X.25 recommendation of 1977.

## 10309 PLANC FOR ND-100

A Pascal like programming language used internally by ND for all system software.

## 10310 PLANC FOR ND-500

See ND 10309.

## 10311 ND-500 ASSEMBLER

## 10312 VIP-II

The ND 10312 emulates the Honeywell Bull VIP 7750-terminal. It is a remote interactive terminal which communicates with a Honeywell Bull host computer. The emulator contains a number of edit functions, cursor positioning and command functions.

## 10315 ACCOUNTING SYSTEM FOR SINTRAN-III

Accounting options are: CPU-time for background users and RT-programs on NORD-10, ND-100 and ND-500. Terminal connect time. Number of block I/O-transfers through the file system. Number of pages printed through the spooling system.

Prerequisite: SINTRAN-III version E or later.

## 10319 ND-500 LINKAGE-LOADER

The Linkage-Loader converts NRF (ND Relocatable Format) code produced by compilers and language processors into absolute instructions and data (domains) which it places on program and data segments on mass storage (disk).



## 10321 TEST PROGRAMS FOR ND-500 MICROPROGRAM

48 bit or 32 bit floating format.

## 10323 MERCUR (ENGLISH VERSION)

The ND 10323 is basically a high-level language for creation, manipulation and presentation of tabular information. However, the main objective with this language is to offer a powerful tool for building and running financial models on ND computers.

## 10324 TEST-PROGRAMS NO. 1 FOR NORD-10, NORD-12 AND ND-100

48 or 32 bit floating format.

Consists of:	BIG-RAND	Random test, big disc
	BIGFUNC	Function test, big disc
	BIMS	Utility program, big disc
	CONFI-INV	Check configuration
	DIMS	Utility program 10 MB disc
	DISC-TEMA	Utility program disc
	EXTEN-ONE	Instruction check
	FLOPPY-FORM	Discette formatting
	FLOPPY-FU	Test interface, functions
	FLOPPY-RAN	Random test floppy disc
	GREMS	Test and utility, disc
	HDL-2	HDL testprogram
	LP-TEST.	Line-Printer testprogram
	MOVER	Memory testprogram
	MPM-MAINT	Multiport test
	MULTI	Memory testprogram
	PFAIL	Check powerfail restart
	SUPER-RAND	Random test, disc
	T32KMOS	Memory and big multiport
	TANB-MAG	Tandberg tape testprogram
	TTEST	Terminal testprogram

## 10325 TEST-PROGRAMS NO. 2 FOR NORD-10, NORD-12 AND ND-100

48 or 32 bit floating format.

Consists of:	100-ERRCOR	Error correction ND-100
	CACHE	Hardware test, CACHE
	CARDR	Card Reader test program
	CHATA	Check acknowledge
	DS1172	Univ DMA interf S1172
	DSERV	Utility for CDC discs
	ECCTEST	Test ECC controller
	ERRCOR	Error Correction Logic
	FLOATING	Floating instructions
	FOUR-CHECK	Check internal interrupts
	ONE-CHECK	Instruction check ND-10

PAGING	Paging test program
PARAL-BYTE	Test interface ND-653
PF-FAIL-12	Test powerfail on ND-12
PROCES-PAN	Check process panel
RGCHK	Check the register block
RTC-12	Test Real Time Clock
SMALL-RAND	Random test on 10 MB disc
T-32B-FLOA	32 bit floating instr
T4KMOS-12	4k Memory test ND-12
T8KMOS	8k memory test
TECOD	Test 10 MB Disc
TERMBUF	Terminal buffer interface
THREE-CHECK	Test programmed interrupt
TLINE	Synchr modem interface
TREPU	Tape reader and punch
TWO-CHECK	Instruction check

### 10326 TEST-PROGRAMS NO. 3 FOR NORD-10, NORD-12 AND ND-100

48 or 32 bit floating format.

Consists of:

1158-SIMPLE	Test 1158 module
DRUMS	Drum maintenance system
ES-PICT	Evans & Sutherland pict
FL-LOOPS	Debugging loops floppy
HPMAG	HP magnetic tape test
INTER-T	External interrupts ND-10
MEM-TEST	Memory test using DMA
PASCAN	Pack verification 75/288M
S1172	Universal DMA - S1172
STC-RUNNER	STC magtape subsystem
STC-TEST	STC magtape controller
TCODR	Core and Drum test
TESTMONO	Monitor NORDCOM-74
TET2200	Test TDV-2200
TNCT	Nordcom Colour Terminal
TREAL	Real time clock
TSTAD	Check big disc addresses
VERSATEST	Versatec printer/plotter

### 10333 ND-500 MONITOR, MULTIUSER

The ND-500 Monitor is an extension to the multi-user SINTRAN-III Operating system for ND-500. It supervises the execution of programs running concurrently in an ND-500.

### 10335 SYMBOLIC DEBUGGER FOR ND-500

The ND Symbolic Debugger provides a powerful set of commands for controlling the execution of programs, inspecting and changing the state of variables under program execution. It may be used for programs written in FORTRAN, COBOL, PASCAL and PLANG or in combinations of these languages.

PRODUCT DESCRIPTION SOFTWARE

The Symbolic Debugger is part of a basic ND-500 system.

10336 SYMBOLIC DEBUGGER FOR ND-100

Same as ND 10335 but for ND-100.

48 bit floating format.

10337 BACKUP-SYSTEM FOR SINTRAN-III

Handles directory-format on all devices, and also volume-format on floppy disc (a file may extend over several floppies) and magnetic tape. Interactive backup, while the rest of the system is running as normal.

48 or 32 bit floating format.

10338 ND-500 MICROCODE FOR ARRAY PROCESSING FUNCTIONS

Consists of a micro-program for ND-500 (loaded from floppy) and a library to be called from FORTRAN. Applications must be tailored to use this interface. Helps speed up heavy compute bound array processing tasks. Typical speed improvement factor over FORTRAN is around 5.

10339 HONEYWELL GRTS-II REMOTE JOB ENTRY EMULATOR

The emulator is specially designed for remote job entry to HB 6000 systems, and communicates through a HB DATANET 355 / 6600 Front-End Network Processor.

10340 SIBAS-II FOR ND-500

See ND 10166. On an ND-560 / 540 SIBAS-II runs 3 - 4 times faster than the ND-100 version.

10341 FOCUS FOR ND-500

See ND 10188.

10343 ISAM FOR ND-500

Index sequential file access method which can be used from FORTRAN, COBOL and PLANC. Fixed or variable length records. Single- or multi-user modes. On ND-560 / 540 it runs more than 4 times faster than ND-100 version.

10344 ND-500 SORT / MERGE SYSTEM

The ND-500 SORT / MERGE system is a program package which enables the user to sort and merge mass storage files, including magnetic tape files. The program handles three types of files; fixed length, variable length and text files according to COBOL specifications.

The ND-500 SORT / MERGE system is available in two versions; as a subsystem and as a subroutine library callable from user programs.

10358 X.21 FOR RJE AND TERMINAL CONCENTRATOR PACKAGES

Software option for running ND RJE and terminal concentrator packages communicating via an X.21 Public Data Network.

Prerequisite: HDLC Interface ND 733 (ND-100)  
HDLC Interface ND 720 (NORD-10)

10366 SCI/TECH PROGRAM DEVELOPMENT OPTION

Compilers and Editor for Scientific and Technical Program development.

Available with ND-100 Satellite systems only.

48 bit floating format.

Consists of: ND 10024 BASIC  
ND 10076 PASCAL  
ND 10080 PED  
ND 10190 FORTRAN

10367 COMMERCIAL PROGRAM DEVELOPMENT OPTION

Package for development of ADP applications.

Only available on ND-100 Satellite systems

Consists of : ND 10080 PED  
ND 10176 COBOL

10368 ACCESS LEVEL 1 OPTION

ACCESS and ISAM.

Available with ND-100 Satellite systems only.

Consists of : ND 10073 ISAM  
ND 10185 ACCESS LEVEL 1

10371 ND DATA DICTIONARY SYSTEM

A Data Dictionary system for FORTRAN, NSHS Screen Handling System and SIBAS. Enables variables to be specified once only and referred to wherever required, thus ensuring correct formats etc.

10373 INTERMACHINE X-MESSAGE

See ND 10130.

## 10374 COSMOS BASIC MODULE

Provides the services necessary to run a (minimal) local network.

## 10375 TELEFIX

Permits analysis of error situations in a customer's computer directly from ND's Service Center. In many cases the error may be fixed without a technician being present at the site. The Service Center may transfer program files, new versions of software, and patch files using Telefix.

Prerequisite: Signed Service Contract.  
ND's Remote Maintenance Adaptor.  
Modem and telephone connection.

## 10379 ND-100 UNIQUE APPLICATION DEVELOPMENT SYSTEM

A system for designing and executing transactions towards a SIBAS-II database. Contains its own screen handling package and data dictionary.

Prerequisite: ND 10166, SIBAS-II Database System

## 10400 SUBSYSTEM PACKAGE II

Consisting of: MAC (ND-100 ASSEMBLER)  
QED LINE EDITOR  
NPL NORD PROGRAMMING LANGUAGE

## 10403 COSMOS X.21 OPTION (USING HDLC-DMA)

Allows use of an X.21 based circuit switching network under COSMOS. Data rate up to 9600 bps. Line cost optimizing.

Prerequisite: ND 10374 COSMOS Basic Module  
ND 730 HDLC Interface (DMA)

## 10404 COSMOS X.25 OPTION

## 10406 SINTRAN-III FOR ND-100 SATELLITE/5

## 10407 SINTRAN-III FOR ND-100 SATELLITE/9

## 10408 SCI/TECH PROGRAM DEVELOPMENT OPTION

Compilers and Editor for Scientific and Technical Program development.  
Available with ND-100 Satellite systems only.

32 bit floating format.

Consists of: ND 10034 BASIC  
ND 10133 PASCAL  
ND 10080 PED  
ND 10191 FORTRAN

10409 X.21 DIALER

10415 SPSS

Statistical Package for the Social Sciences.

10455 VTM TABLES (STANDARD)

Standard VTM-tables used by VTM. Several DDB-tables compounded into one file.

10457 LINKAGE-LOADER FOR PIOC

10458 VTM TABLES FOR VISTAR (OLD)

10459 VTM TABLES FOR DEC VT 100

10460 VTM TABLES FOR TDV 2000

10461 VTM TABLES FOR BEEHIVE 100

10462 VTM TABLES FOR ND NCT

10463 VTM TABLES FOR HAZELTINE 1520

10464 VTM TABLES FOR VISTAR GTX

10465 VTM TABLES FOR DEC VT 52

10466 VTM TABLES FOR TEC 501 / 502

10467 VTM TABLES FOR NEWBURY 7000 / 3

- 10468 VTM TABLES FOR VISUAL 200
- 10469 VTM TABLES FOR LEAR SIEGLER ADM 3A
- 10470 VTM TABLES FOR VOLKER CRAIG VC 404
- 10471 VTM TABLES FOR VOLKER CRAIG VC 410
- 10472 VTM TABLES FOR VOLKER CRAIG VC 414
- 10473 VTM TABLES FOR HEWLETT PACKARD 2621A
- 10474 VTM TABLES FOR DATA MEDIA ELITE 3045
- 10475 VTM TABLES FOR BEEHIVE MINTBEE
- 10476 VTM TABLES FOR PERICOM 6800 (80 COLUMN MODE)
- 10477 VTM TABLES FOR LEAR SIEGLER ADM 31
- 10478 VTM TABLES FOR BEEHIVE DM 5A
- 10479 VTM TABLES FOR FACIT 4420 (VT 52 MODE)
- 10480 VTM TABLES FOR ADDS VIEWPOINT
- 10481 VTM TABLES FOR HAZELTINE EXECUTIVE 80
- 10482 VTM TABLES FOR AMPEX DIALOGUE 80
- 10483 VTM TABLES FOR VOLKER CRAIG VC 4404 (ADM 3A)
- 10484 VTM TABLES FOR DATA MEDIA ELITE 1520 / 1521
- 10485 VTM TABLES FOR TANDBERG TDV 2200 STANDARD
- 10486 VTM TABLES FOR TANDBERG TDV 2200/9 ND NET (NORTEXT)

10487 VTM TABLES FOR NOKIA VDU 210

10488 VTM TABLES FOR PIICEON (33 LINES MODE)

10489 VTM TABLES FOR PIICEON (66 LINES MODE)

10490 VTM TABLES FOR LEAR SIEGLER ADM 42

10500 NSHS FOR ND-500

See ND 10013.

10510 FORTRAN RUNTIME SYSTEM FOR ND-500

Part of ND 10190.

10511 EXCEPTION HANDLING SYSTEM

Included in all basic ND-500 systems, and used by various languages.

10516 FILE HANDLER

Program for retrieval and reformatting of data records from large files, generation of test files, and production of reports or smaller extract files.

10526 NOTIS-WP FOR ND-500

See ND 10079.

10532 PED, PROGRAM EDITOR FOR ND-500

See ND 10080.

10534 JOB EXECUTION CONTROL (JEC)

JEC offers control over the execution of a BATCH / MODE job. When it is insufficient with a sequential pass through a batch or mode job, JEC allows various actions to be taken depending on the result from an executed program (user program, linker, compiler, ...).

10542 TPS-II FOR ND-100

See ND 10054.



10543 TPS-II FOR ND-500

See ND 10054.

10546 VTM TABLES FOR DACOL 242

10547 VTM TABLES FOR TELEVIDEO 912 / 920

10548 VTM TABLES FOR LEAR SIEGLER ADM 32

10549 VTM TABLES FOR GTC 100 / 101

10567 FOCUS RUNTIME SYSTEM FOR ND-100

Part of ND 10188.

10568 FOCUS RUNTIME SYSTEM FOR ND-500

Part of ND 10341.

10575 SINTRAN-III/VSX-100


Operating system for ND-100/CX and ND-100 Compact/CX. (Systems using the CX CPU-option, but not ND-500 systems).

10576 SINTRAN-III/VSX-500

Operating system for all ND-500 systems.

10599 VTM TABLES (NON STANDARD)

Non standard terminal tables used by VTM.



Chapter 7

**Datasheets/Brochures Available**



# DATA SHEETS

## Available from the ND Marketing Department,

Last Update: 10.02.85.

New Data Sheet: \*

### HARDWARE

<u>ND Number</u>	<u>Description</u>	<u>Date</u>
ND 033	Operator's Panel, Nord 100	10.79
ND 034	Display Panel for ND-100	08.81
ND 047	Writeable Control Store (WCS)	10.79
ND 051/52	Adapt. & Mem. contr., 8K/18 h.sp.stat.mem.mod	08.79
ND 060	ND-500 Central Processing Unit	04.81
ND 073	BCD Arithmetic for ND-500	06.82
ND 100/C	ND-100 Compact Series	12.83
ND 100/CX	ND-100/CX Commercial Extended Computer Sys.	12.83
ND 100/SAT	ND-100 SATELLITE Model I	09.84
ND 100/SAT	ND-100 SATELLITE Model II	09.84
ND 100/SAT	ND-100 SATELLITE Model III	09.84
ND 109/11/3302/04	Bus Expander for ND-100	06.81
ND 116/17	MOS Memory, 256,512 Kbytes/22bits	01.82
ND 122/24/27/56	MOS Memory, 128/256/768/64Kbytes/21bits	08.81
ND 138/892	MOS Memory Power	03.79
ND 143/44/45/46 147/58/90	One Bank 128/256kW/Dual B. Multip.Mem.Syst.,/ Port f.One/Dual b.acc.32 bit(four p.)Mem.Stst.	06.81
ND 150/59	16/32 Bit Memory Multiplexer	11.78
ND 151/66	16/32 Bit Memory Channel amplifier/expander	08.79
ND 156	MOS Memory, 32 kW/21 Bits	08.79
ND 167	DMA Address Extender	08.79
ND 230	Printer Terminal, 75cps	07.80
ND 235/36/37	Daisy Wheel Printer	07.83
* ND 238/39/58	Daisy Wheel Printer	12.84
ND 241S	Display Terminal ,Visual	12.80
ND 248	Word- and Data-Processing Terminal	12.82
* ND 271/72	Terminal Interface, 4/8 lines, ND-100	12.84
* ND 273/74	8 Channel Buffered Terminal Interface	02.85
ND 310	Floppy Disk Drive, 308KB	08.81
ND 312	Floppy Disk Drive, 1.2MB	02.82
* ND 316	5 1/4" Floppy Disk Drive	01.85
ND 320	NOTIS terminal	06.84
ND 367	Floppy Disk Controller and Formatter	07.81
ND 381-4/387	Multiport Memory Systems V	11.83
ND 390/1/5	MPM IV Bus Contr./Mem.Port/100 Bus Master	05.82
ND 400/02/50	Card Reader, Card Reader Interface	06.81
ND 425X/26X/27X	Line Printer Terminet (for diff. i.f.)	06.81
ND 431X/458	Band Printer, 600 lpm, Interface.	04.79
ND 448	Multifunction Printer (Phillips GP300L)	06.84
* ND 452	Line Printer	12.84
* ND 475	Matrix Printer GENICOM	02.85
ND 524/34/56	Magtape Drive/Formatter/Controller	04.80
ND 529/36/56	Magtape Drive/Dual Dens. Form./Controller	04.80
ND 543/37/60	Magtape Drive/ 6250 bpi/ Formatter/Controller	04.80
ND 571/561	10 MByte Fixed Disk/Fixed Disk Controller	02.79

(HARDWARE CONT.)

	ND 572/579	150 MByte Disk Drive	??
*	ND 574	288 MByte Disk Drive	11.84
	ND 585/86/87	Cartridge Disk Drive, 30/60/90 MB	04.80
	ND 592/93	Fixed Winchester Disk	10.82
	ND 597	Disk Switch for 37/75/150/288 MB Disk Drives	04.82
	ND 610/11	23 MB/45 MB 5-1/4" Fixed Winchester Disks	01.84
	ND 613	150 MB 8" Fixed Disk Drive	02.84
	ND 615/16	450 MB/300 MB 9" Fixed Disk Drive	02.84
	ND 617	75 MB 9" Removable Disk Drive	02.84
	ND 620	1/4" Cartridge Streaming Tape Drive	01.84
	ND 621	1/2" Mag Tape Drive	02.84
	ND 624	Filestore (Compact Model)	09.84
	ND 629	Filestore (11 Module Cabinet)	09.84
	ND 630	Controller for ND620 Streamer & ND312 Floppy	01.84
	ND 652	Versatec Controller DMA	11.78
	ND 680	ND Color Terminal Controller	06.81
*	ND 685	Color Terminal Interface	01.85
	ND 701	Synchronous Modem Controller	06.81
	ND 711	Asynchronous Modem Controller, 2 lines	08.79
	ND 720	HDLC Interface	01.79
	ND 730/31/33	HDLC I.f.(DMA)/HDLC Auto Load/HDLC w.AutoLoad	05.82
	ND 734	Megalink Interface for ND-100	11.81
	ND 750	Limited Distance Modem	12.80
	ND 751-3	Expansion System for ND-750	11.81
	ND 810/811	Process Digital Input/output	02.79
	ND 820	Analog to Digital Computer	07.79
	ND 845	Terminal Switch Panel	08.81
	ND 846	Dev. Switch for Magnetic Tape	08.81
	ND 849	Terminal Cross Coupler	09.81
	ND 850/51	16 Bit Univ. DMA I.F./DMA Diff. Transc.	11.78
	ND 852	16 Bit Univ. DMA I.F.& Diff. Transc.	06.82
	ND 855/56	Gen. Purp. I.F. Bus Contr./GPIB rem. opt.	06.81
*	ND 863	Ethernet	11.84
*	ND 865/867	PIOC Progr. Input/Output Controller	10.84
	ND 872-77	Power Distribution System	11.83
	ND 5331	ND 530 Model I	09.84
	ND 5332	ND 530 Model II	09.84
	ND 5333	ND 530 Model III	09.84
	ND 5531	ND 550 Model I	09.84
	ND 5532	ND 550 Model II	09.84
	ND 5533	ND 550 Model III	09.84
	ND 5631	ND 560 Model I	09.84
	ND 5632	ND 560 Model II	09.84
	ND 5731	ND 570 Model I	09.84
	ND 5732	ND 570 Model II	09.84
	ND 9710/11	ND Personal Computer(monochrome/graphics)	02.84
	ND 9760	ND CAE Workstation	09.84

Last Update:

10.02.85.

New Products: \*

## SOFTWARE

<u>ND Number</u>	<u>Description</u>	<u>Date</u>
ND 10007/09	Scientific Subroutine Package	05.80
ND 10008	SIBAS Database System	10.79
ND 10013	NSHS Nord Screen Handling System	08.79
ND 10014/21	Flocon	11.81
ND 10016	ND IDT 3270 Emulator	08.81
ND 10018	Nord RPG II	08.79
ND 10020	Nord Cobol (Now ND-10176)	11.79
ND 10024/34	ND Basic, 48/32-bit fl.p. Hardware	11.81
ND 10026	ND IDT CDC 200 User Emulator	04.81
ND 10027	Nord IDT Honeywell Gerts-115 Emulator	02.79
ND 10028	Nord IDT HASP Work Station	04.80
ND 10029/56	Nord IDT Univac NTR Emulator	04.80
ND 10030	Nord IDT IBM 2780/3780 Emulator	04.80
ND 10031/57	Nord IDT Univac DCT 2000 Emulator	02.79
* ND 10049	Sintran III Spool. System	01.05
ND 10050	Nord-Net	01.82
ND 10053	Nord Data Entry System	07.79
ND 10054	ND Transaction Processing System (TPS)	10.81
ND 10058	SIMULA	04.81
ND 10061	ND UTS-400 Emulator	08.81
ND 10069	ND IDT CDC 200 Multidrop Emulator	08.81
ND 10072	Datacon	09.81
ND 10073/343	ISAM for ND-100/500	03.84
ND 10075	Nord II--the MSD-Sort System	08.79
ND 10076/133	ND-100 PASCAL. 48/32 bit format	08.81
* ND 10079	NOTIS-WP-II Word Processor	10.84
ND 10079	NOTIS Ordbehandlung	09.81
ND 10080	PED Program Editor	06.81
ND 10130	X-Message for SINTRAN III/VS	01.82
ND 10142	DDPP (Discrete Data Program Package)	01.82
* ND 10145/541	MERCUR for ND-100/500	02.85
* ND 10152	NOTIS-IR Information Storage Module	10.84
ND 10166	SIBAS-II Data Base System	07.84
ND 10174/575/576	SINTRAN III Operating System	08.84
ND 10176	ND COBOL-100	08.84
ND 10177	ND COBOL-500	09.82
ND 10170	ND IDT MSV" Siemens Emulator	08.81
ND 10179	ND 100 Sort/Merge System	04.81
ND 10183/84	ND IDT HASP-II Work St., Work Station + DMA	04.81
ND 10185/529	ACCESS File Acc. & Query Language ND-100/500	09.84
ND 10187	ND 500 PASCAL	08.81
* ND 10188/10341	FOCUS Screen Handling System ND-100/500	12.84
* ND 10190/91	ND-FORTRAN ND-100/500	12.84
ND 10191	FORTTRAN for ND-100/NORD 10	11.81
* ND 10192	NOTIS 10	11.84

## (SOFTWARE CONT.)

ND 10193	Report Generator	09.84
ND 10195	Data Entry System II	09.82
* ND 10196/538	APL-100/500	02.85
ND 10197	SIBAS Backend Communication Modules	01.82
ND 10199	X.25 Packet & Link L. S.W. f. SINTRAN III/VS	05.82
ND 10309	PLANC for ND-100	05.82
ND 10310	PLANC for ND-500	05.82
ND 10311	Assembler for ND-500	02.82
ND 10312	VIP 7750-Emulator-II	06.81
ND 10315	Acc.Syst. for SINTRAN III/VS,VSE,VSE-500	02.81
ND 10319	ND-500 Linkage Loader	07.81
ND 10333	ND-500 MONITOR	08.81
ND 10335	Symbolic Debugger for ND-500, Multuser	02.82
* ND 10336	Symbolic Debugger for ND-100	02.82
ND 10337	The Backup System	01.85
ND 10338	ND-500 Microcode for Array Proc. Funct.	10.82
ND 10339	HW8 RJE Emulator	08.81
ND 10340	SIBAS-II Data Base System for ND-500	07.82
ND 10342	TPS-II	08.83
ND 10343	ISAM for ND-500	04.84
* ND 10344	ND-500 SORT/HERGE SYSTEM	11.01
ND 10354	SIMULA	02.85
ND 10358	X.21 Option for RJE-Pack and Term.Conc.	05.82
* ND 10371	ND Data Dictionary System	10.82
* ND 10374	Cosmos Basic Module	12.84
* ND 10375	TELEFIX	02.85
ND 10379	UNIQUE (Norwegian and English)	02.84
* ND 10403	COSMOS X.21 OPTION	11.84
* ND 10405	X.29 PAD	11.84
ND 10493	PIOC Basic Software	12.84
* ND 10516	File Handler	06.83
ND 10518	User's Environment	02.84
ND 10530/716	NOTIS Calc (Version B)	06.84
ND 10534	Job Execution Control	03.84
* ND 10535	COBOL Generator	12.84
* ND 10557/8	TRUE Transaction User Environment	01.85
ND 10561/63	ND Link/PC Link	02.84
* ND 10573	X.25 Option	11.84
* ND 10578	X.29 Server	11.84
* ND 10587	TELETEX	10.84
ND 10602	ND-Bench Source Compare	03.84
ND 10603	ND-Bench File Compare	03.84
ND 10604	ND-Bench Foreign Media	06.84
ND 10605	ND-Bench FORCON/VAX	03.84
* ND 10609	COSMOS Programers Library	04.85
ND 10713/18	ABM Applications Building/Maintenance	08.84
ND 10715	ND BENCH Environment	07.84
* ND 10724	NOTIS B6 Business Graphics	10.84
ND 10729	UNIQUE for ND-100/500	09.84
* ND 10732	TELEX	10.84
* ND 10742	SNA 3270 Terminal Emulator	12.84
* ND 10745	ND-Ada Programming Language	01.85
* ND 10755	ND-500 BASIC	02.85

# BROCHURES

available from the ND Marketing Department, 84-10

Description: \_\_\_\_\_ Language(s): \_\_\_\_\_

Company level:

Annual report 1983 E,N

Concept level:

ND-SAFE Systems Architecture For Expansion E,N,G  
User environment (ND-ORBIS) E,N,G,F  
ND-Technovision E,G,F

Product level:


ND-100 Satellite E,G,F,N  
ND-100 Compact E,G,F,N  
ND-100/CX E,N,F  
ND-500/CX range E,N,F,G  
ND-500/CX technical/scientific E  
  
ND-NOTIS Text and information processing E,N,S,DK,G,F,NL  
ND-DIALOGUE Development and productivity tools E,N,F  
ND-COSMOS Networking system E,N  
ND-TPS Transaction processing system E

Application areas:

ND in physics E

ND Comtec:

Nortext: Our business, your future. E,N,S



Chapter 8

**Manuals Available**





## **MANUALS AVAILABLE**

### **from the ND Documentation Department, 84-10**

On the following pages, please find a complete list of documentation applicable for the NORD-10, NORD-12, NORD-100, NORD-50 and NORD-500 computers. The list includes:

- Software Description
- Hardware Description

A few comments to the list:

The "Last Release" column shows when the latest update was made. When we are making a complete revision of a manual, the version number is incremented by one. To find out if you have the last version of a manual, please check the "Revision Record" sheet at the beginning of each manual. The version number is the last two digits of the publication number.

The list also indicates if the manual has only been partly revised. As an example, refer to the Test Program Description where we have four revisions — A, B, C and D — to the version .03.

#### **Discount:**

- When ordering at least five copies of each manual, you will receive a 20% deduction.
- A 40% discount will be received on manuals used for educational purposes. In this case at least 15 copies of each manual must be ordered.

#### **Time of Delivery:**

- Delivery time is normally from 2 weeks.

Title	Publ.No.	Version	Last Release	Price NOK	Reference to Product No.:
ACCESS Brukerveiledning	ND-60.152	03	September 1984	100	10185C
ACCESS DBA Håndbok	ND-30.020	03	September 1984	75	10185C
ACCESS DBA Manual	ND-30.022	03	August 1984	75	10185C
ACCESS User Guide	ND-60.153	03	September 1984	100	10185C
ALFA Dokumentasjon - norsk. Pr. sett kr.				300	
ALFA Adresseringssystem — Brukerveiledning	ND-61.020	01	January 1983	25	
ALFA Standard Faktura — Brukerveiledning	ND-61.013	01	January 1983	50	
ALFA Standard Fakturering — Systemdokumentasjon	ND-61.014	01	January 1983	50	
ALFA Standard Lønn — Brukerveiledning	ND-61.015	02	July 1983	50	
ALFA Standard Regnskap — Brukerveiledning	ND-61.012	01	September 1982	75	
ALFA Standard Regnskap — Programdokumentasjon	ND-61.016	01	January 1983	50	
ALFA Supervisor — Brukerveiledning	ND-61.018	01	January 1983	50	
SUF/CUFTT Brukerveiledning	ND-61.019	01	January 1983	50	
Økonomisk analyse og simulering	ND-61.017	01	January 1983	50	
APL - ND APL User Guide	ND-60.170	02	July 1984	75	10196A
Big Multiport Memory System	ND-06.007	01	August 1978	175	146
BRF-LINKER User Manual	ND-60.196	01	August 1984	75	
Brukermiljø Håndbok	ND-60.194	01	February 1984	125	
CAMAC — CC-NORD-10 General Information	ND-12.007	01	September 1974	100	800
CAMAC — CC-NORD-10 Hardware	ND-12.006	01	June 1974	100	800
CDMA — NORD-10 General Information	ND-12.004	01	June 1974	100	—
Circuit Symbols and Logic Diagrams	ND-13.003	02	May 1982	275	—
COB-GEN Reference Manual	ND-60.171	01	October 1983	75	10536B
COBOL Reference Manual	ND-60.144	02	August 1982	150	10177A 10176E 10189E 10176G 10189G 10177G
Revision A			July 1983		
Revision B			June 1984		
COSMOS Operator Guide	ND-30.025	02	July 1984	125	
COSMOS User Card	ND-99.001	Q01			
COSMOS User's Guide	ND-60.163	03	February 1984	125	10374B
COSMOS X.21 Option Operator Guide	ND-30.033	01	June 1984	125	
COSMOS X.25 Option Operator's Guide	ND-30.034	01	January 1984	125	10573A
Data Communication	ND-12.016	01	March 1978	225	—
Data Dictionary System (DDS) Reference Manual	ND-60.162	02	April 1983	100	10371C

Title	Publ.No.	Version	Last Release	Price NOK	Reference to Product No.:
Data Entry System	ND-60.101	03	January 1979	75	10053G
Data Entry System II - Norsk versjon	ND-60.154	03	June 1983	100	10195C
Data Entry System II - English version	ND-60.165	03	June 1983	100	10195C
Database Administrator Module	ND-60.097	01	October 1977	75	
Database Theory & Design	ND-60.078	01	December 1976	125	-
DATACON User's Guide	ND-60.107	01	September 1978	50	10072B
DCHT - Data Channel Test Program	ND-62.005	01	May 1974	25	-
DDPP Håndbok (Only in Norwegian)	Kan kjøpes i Universitetsbokhandelen				10142B
Documentation Catalogue	ND-40.004	05	August 1983	0	
Dual Channel Disk Switch	ND-11.019	01	February 1984	125	
1158 - DR-11-C Interface	ND-12.015	01	April 1978	50	814 815
ECC - (Error Correction Control) Disk Controller, NORD-10/S	ND-11.013	02	September 1982	175	558
FACIT 4420/ND User's Guide	ND-12.024	01	March 1983	100	
FILE Compare	ND-60.184	02	March 1984	50	10603A
File Handler User's Manual Revision A	ND-60.175	01	May 1983 February 1984	50	10516B
File System - System Documentation	ND-60.122	02	January 1980	125	
FLOCON User's Guide	ND-60.099	02	March 1982	100	10021F 10014F
Floppy and Streamer Controller 3106/3112	ND-11.021	01	August 1984	125	
Floppy Disk Controller 3027	ND-11.015	01	May 1982	75	
Floppy Disk System	ND-11.012	01	October 1976	175	355
FOCUS Screen Handling System Reference Manual	ND-60.137	04	March 1984	75	10188E 10341E 10567E 10568E
Foreign Media	ND-60.185	02	April 1984	50	10604A
FORTRAN Converter	ND-60.186	02	March 1984	50	10605A
FORTRAN - ND FORTRAN Reference Manual	ND-60.145	06	March 1984	150	10191D 10190H 10510H 10511B 10186D
General Purpose Interface Bus (GPIB) User Guide	ND-12.023	02	August 1984	75	
HAWK Disk Controller	ND-11.010	01	March 1976	150	551
HAWK Disk System	ND-11.009	01	December 1975	200	510 511
HDLCL - High Level Data Link Control Interface	ND-12.018	01	November 1978	150	720, 721 722, 723

Title	Publ.NO.	Version	Last Release	Price NOK	Reference to Product No.:
Interface to Pertec Magtape with Formatter	ND-12.012	01	February 1977	75	556
ISAM — ND Indexed Sequential Access Method Reference Manual	ND-60.108	05	December 1983	75	10073H 10343H
MAC User's Guide	ND-60.096	01	March 1978	100	10400A
Magtape-Lister Program User's Guide	ND-60.126	01	March 1979	25	
MEAS II - An Analog Program System for Program Control	ND-60.079	01	January 1977	100	10036A
MERCUR Full Screen Handling User Guide	ND-60.188	01	January 1984	75	10611A
MERCUR Fullskärmshantering Andvändarhandbok - Swedish	ND-60.187	01	January 1984	75	10145A
MPM 5 Technical Description	ND-10.004	01	June 1984	75	
MSD-SORT System	ND-60.123	02	June 1980	25	10075D
Multiport Memory Channel Specifications	ND-10.006	01	March 1984	125	
NCT - NORD Colour Terminal Users Guide	ND-60.094	02	Februar 1978	75	10046C
ND Link, Introduksjon til	ND-60.190	01	April 1984	50	
NORD Computers in Administrative Data Processing Applications Revision A Revision B	ND-60.115	01	August 1979 December 1979 August 1980	100	—
NORD IDT					
3270 Emulator User's Guide	ND-60.114	01	September 1979	75	10016C
3780 User's Guide	ND-60.067	02	January 1976	75	10030A
200 User Operator's Guide	ND-60.061	01	October 1975	75	10069B 10026A
DCT-2000 Operator's Guide	ND-60.060	01	October 1975	75	10057A 10031A
GERTS-115 Operator's Guide	ND-60.041	03	February 1977	75	10027B
HASP Work Station	ND-60.069	02	June 1978	75	10063A 10028B
HASP-II Work Station User's Guide	ND-60.143	02	September 1982	100	10183C 10184C
Honeywell Bull Remote Job Entry Emulator - User's Guide	ND-60.160	01	April 1982	100	10339A
IBM 3780/2780 Emulator User Guide	ND-60.209	01	October 1984	100	
NTR User's Guide Revision A	ND-60.070	02	December 1976 November 1977	75	10056B 10029B
SNA 3270 Terminal Emulator Operator Guide	ND-30.038	01	August 1984	100	
UTS-400 Emulator User's Guide	ND-60.159	01	September 1981	75	10061B
7750 VIP Emulator User's Guide	ND-60.100	01	December 1977	75	10059A
7750 VIP Emulator-II User's Guide	ND-60.140	01	March 1981	75	10312B

Title	Publ.No.	Version	Last Release	Price NOK	Reference to Product No.:
NORD PL User's Guide Revision A	ND-60.047	03	October 1976 July 1977	75	10400A
NORD Process I/O Software Guide Revision A	ND-60.093	01	September 1977 October 1978	75	—
ND Screen Handling System	ND-60.088	03	November 1982	100	10135K 10053G 10013K 10500K
NORD-10/100 FORTRAN System Reference Manual	ND-60.074	03	June 1980	125	10067D 10033K 10023K
NORD-10 BASIC Compiler Reference Manual Revision A Revision B Revision C Revision D	ND-60.071	01	August 1976 September 1977 March 1979 January 1980 May 1981	125	10034D 10024D
NORD-10/S Input/Output System	ND-06.012	01	May 1978	200	—
NORD-10/S Functional Description Revision A	ND-06.009	01	August 1977 October 1978	175	—
NORD-10/S General Description and Module Description	ND-06.013	01	October 1978	75	—
NORD-10/S Hardware Maintenance Manual	ND-30.004	02	September 1981	250	—
NORD-10/S Instruction Codes Card			October 1978	0	—
NORD-10/S Microprogram	ND-06.010	01	February 1978	150	—
NORD-10/S Reference Manual Revision A	ND-06.008	01	April 1977 June 1977	100	—
NORD-12 Reference Manual	ND-07.001	01	May 1975	75	—
NORD-10/NORD-50 Communication System	ND-06.005	01	August 1975	50	10004Q
NORD-10/NORD-50 Operator's Guide Revision A	ND-30.001	01	August 1979 May 1982	75	20, 50
NORD-50 Assembler Revision A	ND-60.075	01	July 1976 January 1979	75	10004Q
NORD-50 BRJ Editor	ND-60.098	01	December 1977	25	10004Q
NORD-50 General Description and Module Description	ND-05.008	01	January 1979	75	—
NORD-50 FORTRAN Reference Manual	ND-60.095	02	May 1978	125	10004Q
NORD-50 Functional Description	ND-05.007	01	November 1977	175	—
NORD-50 Hardware Maintenance Manual	ND-30.010	02	January 1982	250	—
NORD-50 Loader User's Guide	ND-60.083	02	August 1978	50	10004Q
NORD-50 Monitor User's Guide and System Documentation	ND-60.076	02	November 1978	125	10004Q
NORD-50 Reference Manual	ND-05.003	01	February 1976	75	10004Q
NORD-50 Test System Revision A	ND-62.008	01	September 1975 May 1977	25	50

Title	Publ.No.	Version	Last Release	Price NOK	Reference to Product No.
NORD-100 beskrivelse	ND-06.017	01	April 1979	50	
ND-100 COMPACT Operator Guide	ND-30.031	02	May 1984	75	10628B
NORD-100 Functional Description	ND-06.015	01	August 1980	150	
NORD-100 Input/Output System	ND-06.016	01	December 1980	200	
ND-100 Instant Instruction Codes Card	ND-06.021	Q02	December 1983	0	—
NORD-100 Microprogramming Description	ND-06.018	01	January 1980	100	—
ND-100 Operator's Communication Instruction Survey	ND-06.022	Q02	December 1983	0	—
ND-100 Reference Manual Revision A	ND-06.014	02	January 1982 January 1983	175	100
ND-100/ND-500 Sort/Merge System Revision A Revision B	ND-60.146	03	January 1983 August 1983 January 1984	75	10179D 10344B
ND-500 Array Processing Functions	ND-05.013	02	May 1984	100	
NORD-500 Assembler Reference Manual	ND-60.113	02	May 1980	100	50 10311B
ND-500 Loader/Monitor Revision A	ND-60.136	04	September 1982 May 1983	125	10319F 10333E 10457G
ND-500 Micro Programming Guide	ND-05.012	01	January 1983	125	
ND-500 Reference Manual Revision A Revision B Revision B	ND-05.009	02	Juli 1982 October 1982 April 1984 April 1984	150	
NORDCOM Colour Terminal Hardware Manual Revision A	ND-12.013	02	October 1979 December 1979	225	680
NORDRIFT — Håndbok for driftoperatører	ND-30.026	01	Juli 1983	150	10542A
NORDNET System Documentation	ND-60.081	04	July 1980	125	10050
NORTEXT Annonse Brukerhåndbok	ND-61.007	01	February 1982	75	
NORTEXT Production System IIC Operator Manual	ND-61.002	03	October 1982	150	
NORTEXT Produksjons-system III, del I (System - Terminal - Editor)	ND-61.003	03	January 1983	100	
NORTEXT Produksjons-system III, del II (Kommando - Beskrivelse)	ND-61.003	03	January 1983	100	
NORTEXT Produksjons-system III, del III (Funksjons-koder)	ND-61.003	03	January 1983	100	
NORTEXT Supervisor	ND-61.006	02	November 1982	100	
NORTEXT Systemansvarlig Revision A	ND-61.005	01	December 1981 November 1982	100	
NOTIS-1 Bruker-veiledning	ND-60.139	03	September 1981	75	10079G
NOTIS-1 Håndbok	ND-60.156	01	February 1982	100	10079G
NOTIS-1 Reference Manual	ND-60.155	01	October 1981	100	10079G


Title	Publ.No.	Version	Last Release	Price NOK	Reference to Product No.:
NOTIS-I User's Guide	ND-60.120	04	August 1981	75	10079G
NOTIS-I Øvingsbok	ND-60.142	01	October 1980	50	10079D
NOTIS-CALC Brukerhåndbok	ND-63.026	02	May 1984	100	10530C 10716C
NOTIS-CALC User Guide	ND-63.025	02	April 1984	100	10530C 10716C
NOTIS-IR Brukerhåndbok	ND-63.006	02	June 1983	125	10152E 10527E
NOTIS-IR User's Guide	ND-63.005	02	June 1983	125	10152E 10527E
NOTIS Oppslagskort for ikke-NOTIS terminaler	ND-63.032	Q01	January 1984	0	
NOTIS Reference Card for non-NOTIS terminals	ND-63.031	Q01	January 1984	0	
NOTIS-RG Håndbok	ND-63.014	02	November 1983	100	10193A 10528A
NOTIS-RG Reference Manual	ND-63.013	02	September 1983	100	10193A 10528A
NOTIS-TF Håndbok	ND-63.008	01	June 1983	75	10079K 10526K
NOTIS-TF Makro Veiledning	ND-63.010	01	August 1983	75	10079K 10526K
NOTIS-TF Macro Guide	ND-63.009	01	December 1983	75	10079K 10526K
NOTIS-TF Reference Manual, Text Formatter	ND-63.007	02	July 1983	75	10079K 10526K
NOTIS-WP Håndbok - Editor	ND-63.004	02	June 1983	125	10079K 10526K
NOTIS-WP, Introduction to	ND-63.001	02	June 1983	75	10079K 10526K
NOTIS-WP Introduksjon	ND-63.003	02	July 1983	75	10079K 10526K
NOTIS-WP Oppslagskort for FACIT-4420	ND-63.020	Q01	October 1983	0	
NOTIS-WP Oppslagskort for TDV-2200/9	ND-63.016	Q02	December 1983	0	
NOTIS-WP Reference Card for FACIT-4420	ND-63.019	Q01		0	
NOTIS-WP Reference Card for TDV-2200/9	ND-63.015	Q01	October 1983	0	
NOTIS-WP Reference Manual - Editor	ND-63.002	02	June 1983	125	10079K 10526K
NRL — ND Relocating Loader	ND-60.066	04	February 1983	75	10044S 10005U
PASCAL — ND PASCAL User's Guide	ND-60.124	05	January 1984	100	10076J 10133J 10187J
PC-Link User Manual	ND-60.189	01	February 1984	50	10561A 10563A
PED User's Guide	ND-60.121	04	June 1983	100	10080J 10532K

Title	Publ.No	Version	Last Release	Price NOK	Reference to Product No.:
PIOC Hardware Reference Manual	ND-02.003	01	December 1982	150	
PIOC Hardware Reference Manual ND-865 & ND-867	ND-02.004	01	July 1984	150	
PIOC Software Guide	ND-60.161	02	April 1984	125	10493B
PLANC Reference Manual Revision A	ND-60.117	04	June 1983 December 1983	125	10309E 10310D 10491C
Planlegging og installasjonsmanual	ND-13.015	02	June 1982	100	
PLOT Package	ND-60.058	03	July 1975	75	10010A
Power Unit 10	ND-13.012	01	December 1978	50	20
QED User's Manual Revision A Revision B Revision C	ND-60.031	04	March 1979 August 1979 September 1979 August 1980	50	10400A
Reference to Utility Program for the RPG-II User	ND-60.106	01	August 1978	25	10018J
RPG—II User's Guide	ND-60.091	01	September 1977	75	10018J
Satellite Installation and Operation Guide	ND-30.024	02	December 1982	75	
SCANNET User's Guide	ND-60.087	01	May 1977	75	—
Scientific Subroutine Package	ND-60.037	01	September 1972	100	10007B 10009A 10070A
SIBAS II Operator's Manual	ND-30.009	01	February 1983	100	10166D
SIBAS II User Manual	ND-60.127	04	August 1984	175	10166D 10167A 10340D
SIMULA Reference Manual - NORD-100	ND-60.092	03	December 1980	75	10058P
SINTRAN III Communication Guide	ND-60.134	02	November 1981	125	10373H 10048H 10130H 10174H 10175H
SINTRAN III Data Fields	ND-60.112	01	June 1979	75	10048B
SINTRAN III Introduksjon	ND-60.141	04	December 1983	75	10174I 10175I 10575I 10576I
SINTRAN III Introduction	ND-60.125	04	December 1983	75	10174I 10175I 10575I 10576I
SINTRAN III Postmortem Investigator	ND-60.110	01	April 1979	50	
SINTRAN III Quick Reference Card	ND-60.174	Q01	October 1983		
SINTRAN III Real Time Guide Revision A	ND-60.133	02	December 1982 February 1984	175	10048H 10174H 10175H
SINTRAN III Real Time Loader	ND-60.051	07	August 1981	75	10048H 10174H 10175H



Title	Publ.No	Version	Last Release	Price NOK	Reference to Product No.:
SINTRAN II: Real Time Loader - System Documentation	ND-60.072	02	August 1977	125	
SINTRAN III Reference Manual	ND-60.128	04	February 1984	225	10048H 10174H 10175H
SINTRAN III System Documentation Revision A Revision B Revision C Revision D	ND-60.062	01	December 1975 September 1976 February 1978 May 1979 June 1980	225	
SINTRAN III System Supervisor	ND-30.003	06	July 1984	125	10634A 10048H 10174H 10175H 10022U 10315E 10628B
SINTRAN III Timesharing/ Batch Guide	ND-60.132	03	October 1982	125	10048H 10174H 10175H
SINTRAN III—C User's Guide	ND-60.082	01	May 1977	125	10047 (80.02.01A)
SINTRAN III Utilities Manual	ND-60.151	02	June 1984	125	10337E 10005U 10044S 10534A
SITE Preparation and Installation Manual	ND-13.014	03	June 1982	100	
Source Compare	ND-60.183	02	March 1984	50	10602A
STC Magtape Subsystem	ND-11.014	01	July 1980	150	
Symbolic Debugger User's Guide	ND-60.158	02	February 1983	50	10335D 10336D
Technical Introduction to Multiport 4	ND-10.003	01	May 1982	75	
Telefix Reference Manual	ND-30.040	01	September 1984	125	
Test Micro Program Description - ND-500	ND-30.013	02	September 1981	75	10321D
Test Microprogram Descriptions - ND-500/2	ND-30.029	01	July 1984	75	
Test Program Description for ND-100 — NORD-10/S, NORD-10 and NORD-12	ND-30.005	02	April 1983	100	10522B 10523C
Test Program Description for ND-500	ND-30.018	01	April 1982	75	
TPS - NORD TPS General Description	ND-60.105	03	December 1982	100	10054D 10342A
ND TPS User's Guide	ND-60.111	04	January 1984	150	10054E 10342A 10542A
ND TPS System Supervisor's Guide Revision A	ND-30.006	03	December 1982 September 1983	150	10054E 10342A 10542A
ND TPS-II Operator's Guide	ND-30.030	01	February 1984	150	

Title	Publ.No	Version	Last Release	Price NOK	Reference to Product No.:
ND TPS-11 User's Guide	ND-60.195	01	February 1984	150	10542A
TRACE Routine	ND-60.046	02	November 1974	25	10400A
TRUE User's Manual	ND-60.176	01	February 1984	75	10557A
UNIQUE User Manual	ND-60.169	03	May 1984	125	10379E 10594C 10531D
(Including Chap. 2 in Norwegian)					
Universal DMA Interface	ND-12.020	02	September 1983	125	
User Environment Reference Manual	ND-60.179	01	December 1983	125	10518A 10715A
Winchester Disk Controller	ND-11.016	02	January 1984	100	
X.21 Dialing Driver User's Guide	ND-60.166	01	June 1982	50	10409A
X.25 Reference Manual	ND-60.138	02	March 1982	125	10199A
X.25 Supervisor's Guide	ND-30.023	01	March 1982	125	



Chapter 9

**Information from Technical  
Information Group**



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### 1 Technical Information Library

Each ND office shall be equipped with a Technical Information Library, which consists of a number of A-4 sized black and white binders. This library is made up of several publications issued by Technical Information Group. These publications are continuously updated (cf. other sections this chapter) and distributed to each ND office. Each ND office is, however, responsible for keeping the library updated. The library consists of the following publications :

- Technical Support Info. (I.e. Urgent info. to field-service.  
NOTE: A copy must be sent to the product specialists mentioned.)
- Engineering Change Orders (ECOs) on ND products
- Engineering Change Orders (ECOs) on ND non manufactured products
- Technical Tips (Tech. Tip)
- Logic diagrams for all ND equipment
- External cables
- Software Information :   Software Error Report  
                              Software Modification Report  
                              Software Information Report
- Manuals (on peripheral equipment). Can be ordered from Central Stores, Skullerud, referring to the six digit hardware partnumber.
- Customer Support Information (CSI)  
  Please note : Copyright Norsk Data A.S - Norway .

### 1.1 Technical Information Bulletin

#### **Purpose:**

Its purpose is to update the Technical Information Library at each office. It is not meant to be sent on to each employee for a thorough read, but to act as a library where information referred to, f.ex.in the handbook, can be sought and found.

The bulletin is for INTERNAL USE ONLY, and shall not be distributed to customers or others. This is due to copyright regulations.

#### **Updates:**

The Technical Information Bulletin is issued weekly and distributed to all Norsk Data's service offices worldwide.

#### **Mailinglists:**

The secretaries in Technical Support are responsible for the mailinglists. Please contact them if any changes in or additions to the list are necessary.

## 2 Service Handbook

### **Purpose:**

The main purpose of the handbook is to offer as good and as much information as possible to the service personell when on a job at a customer. At the same time, there must not be redundant and unnecessary information, since this will enlarge the book and make it less handy.

Thus, information given here will only be extracts of the weekly and monthly publications from Technical Information Group. The book is therefore most successfully used as a reference to the other publications, where more detailed information can be found.

### **Contents:**

The Service Handbook is divided into four volumes.

- Volume I : General Information  
Customer Support Organization  
Addresses & Telephone Directories
- Volume II : Communication  
Peripheral Equipment
- Volume III : ND Equipment
- Volume IV : Software

### **Updates:**

The Service Handbook is updated approximately every second month, and updates are automatically sent to the recipients of the handbook.

### **Mailinglists:**

The secretaries in Technical Support are responsible for the mailinglists. Please contact them if any changes in or additions to the list are necessary.

### 3 Customer Support Information (CSI)

The Customer Support Information is issued monthly, the third week of each month. It is distributed to ND customers, to ND employees with direct customer contact, and one copy is sent to the Technical Library at each ND office.

#### **Purpose and contents:**

The CSI is intended for a broad group of ND users, from operators to system programmers. The CSI readers will be able to see if errors in the products they use have been corrected, and if available modifications are of any interest. They will also find general information for better use of ND products, as well as new products and ND literature that may be of interest.

#### **Mailinglists:**

The Graphic Centre is responsible for the mailinglists (both for internal distribution and to customers). Please contact them if changes in or additions to the list are necessary. The address is :

Publications Office  
Norsk Data A.S  
P.O Box 25 Bogerud  
N-0621 Oslo 6



#### 4 Support Information System (SIS)

##### **Purpose:**

The speed and flexibility of the information flow in Norsk Data has become more and more important. This is mainly because of the fast growing number of service personell and ND offices. It is very important to avoid an already solved problem causing problems and wasted time elsewhere in ND.

As a solution to these information flow problems, we started developing an online information system. In addition there was a need for a tool to make the Sintran Patchfile. This information system is called "SUPPORT INFORMATION SYSTEM" (abbreviated SIS). SIS includes online access to Software Systems Reports (SSRs) for all software products and a routine used by Technical Support to generate Sintran Patchfiles from the available Sintran SSRs.

##### **Contents:**

SIS consists of a database containing a large number of PSSRs (Preliminary Software System Reports) and SSRs (Software System Reports). The database also contains information about each user and some about the remote computer.

The system is controlled by an application programme which communicates with the database. SIBAS II is used as Database Management System.

##### **How to get in contact with SIS:**

The communication between our database and other computers is based on ND's communication concept X-message. Inside ND-Skullerud, this is obtained through the internal data-network. For the rest of the company the connection is done through Televerket's (PPT's) data-network X-21 and X-25.

Anyone who wants access to the Support Information Support must therefore have a X-21 or X-25 connection. The X-21 and X-25 datalines can be ordered from Televerket(PPT). A variety of extra utilities are available, and it is necessary to have a HDLC interface for the X-21 and X-25 modem connections, and the X-21/X-25 software. Finally it is necessary to define our computer in the remote computer X-message, and to define the remote computer in our X-message. When this connection exists, we can install our programmes in the remote computer as SIBAS BACKEND versions. These programmes do only require that the :VTM files exist on the remote computer.

When the programmes are installed as REENTRANT SUBSYSTEMS, each user is able to use the information system as if it was on their own local computer, except that the database access will be slower due to the SIBAS calls which have to pass the X-21/25 line.

In order to access the database you must type:

\$ SIS

and a help menu will appear.

#### How to use SIS:

There are two different report types; PSSR (Preliminary Software System Reports) and SSR (Software System Report). The two report types have the same format, but the PSSR has the following leading text in the heading :

#### \*\*\* PRELIMINARY FOR INTERNAL USE ONLY \*\*\*

The difference between PSSR and SSR is how they are used. A SSR is a description of a solved problem, while a PSSR is a description of the current state of a not solved problem. Therefore a PSSR might be changed or even deleted without further notice to other users.

The system generates screenpictures which are self-explanatory and contain some help-functions. When writing reports, you can get some information about what to write in each field by pressing the <HELP> or H key.

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Chapter 10

**Local Chapter**