

SNX 200/400/RS, SNX 200/400/RM SYSTEMA (LARK)

CHARACTERISTICS

Microprocessor	SNX 200/400 100: 100/66 MHz Intel PENTIUM 100 SNX 200/400 133 and 400 133 W: 133/66 MHz Intel PENTIUM 133 SNX 400 166 W: 166/66 MHz Intel PENTIUM 166
Multiprocessor	SNX 200: up to two CPU boards (dualprocessor) SNX 400: up to four CPU boards (quadriprocessor)
Chip-Set	Corollary
Triple bus architecture	64-bit C-Bus-II (Bus Corollary for CPU and memory boards), 400 MB/sec. 32-bit EISA (Extended Industry Standard Architecture), 33 MB/sec. 32-bit PCI (Peripheral Component Interconnect), 132 MB/sec.
Expansion slots	SNX 200: 3 CBus-II, 5 EISA, 3 PCI, 1 dual EISA/PCI, 1 for Bridge. SNX 400: 5 CBus-II, 5 EISA, 3 PCI, 1 dual EISA/PCI, 1 for Bridge.
Cache memory	16 KB integrated in the processor + 512 KB of second level write-back, parity protected, synchronous cache expandible to 1 MB.
ECC RAM	SNX 200: 32 MB to 768 MB (256 on motherboard + 1 memory board). SNX 400: 32 MB to 1 GB (with 2 memory boards)
Cabinet	SNX 200/400/RS 100 and 133: SILVER Narrow box (8-bit) SNX 200/400/RM 133 and 133 W: 19" Narrow Rack box (8-bit) SNX 400/RS 133 W and 166 W: SILVER Wide box (16-bit) SNX 400/RM 133 W and 166 W: 19" Wide Rack box (16-bit)
Video controller	On-board SVGA, compatible with the VGA modes.
Video memory	SNX 200: 512 KB expandible to 1 MB SNX 400: 1 MB
Configuration of resilience systems	SNX 200/400/RS/RM 100 and 133: RAID DPT SCSI Narrow controller for the HDUs and Dagger controller for the removables SNX 400/RS/RM 133 W and 166 W: RAID DPT SCSI Wide controller for the HDUs and Dagger or GO2109 controller for the removables Given the specific structure of the SILVER and Rack cabinets, in combination with HDU redundancy features (RAID-1 and RAID-5), faulty HDUs can be replaced without having to power off the system (HDU hot swapping), and the data automatically reconstructed on the new hard disk.
Configuration of non-resilience systems	SNX 200/400/RS/RM 100 and 133: Dagger SCSI Narrow controller for the HDUs and removables or a Dagger for the HDUs and a Dagger for the removables SNX 400/RS/RM 133 W and 166 W: GO2109 Lance SCSI Wide controller for HDUs and removables, or a GO2109 for the HDUs and a Dagger or GO2109 for the removables The system can also be equipped with a non-RAID SCSI controller. In this case HDU hot swapping is not supported.
Redundant systems	Possibility of redundant basic module and PEM configurations consisting of two power supplies and two fan assemblies so that if any of the primary modules fail, all system activities can continue as normal.
Disk Duplexing	Feature which consists of dividing the basic module SCSI channel with six HDUs into two separate channels with three HDUs each. Each channel is connected to a dedicated SCSI controller in order to create two mirrored HDU/controller channels. Software support is provided by the operating system.

Peripheral Expansion Module PEM RS/RM Narrow PEM RS/RM Wide	This optional external module can only host HDUs and increases the system's mass storage capacity. The PEM for RS systems derives from the SILVER Narrow or Wide box, the PEM for RM systems is available in Narrow or Wide Rack version and can host up to 12 HDUs (twice as much as the system). The PEM Narrow can only be connected to the RAID DPT SCSI Narrow controller while the PEM Wide can only be connected to the RAID DPT Wide controller. In any case the HDUs can always be hot swapped. Up to six PEMs can be connected to the system. The PEM Narrow is only available for the SNX 200/400/RS/RM 100 and 133.
Dual Host (SNX 400/RS/RM 133 W and 166 W only)	Possibility of dual host configurations using the RAID DPT SCSI Wide controller for the management of the HDUs in the PEM. The configuration consists of two basic modules connected to 1 or 2 Wide PEMs; in case any one of the two systems fails, the other can take control of the HDUs shared in the PEM.
Uninterruptible Power Supply	External, battery-equipped, Standard and Rack UPS models are available which provide constant power supply to the system in the event of line voltage failures. To safeguard the integrity of the data stored on the hard disks in the event of line voltage failures, resilience systems and those equipped with the SCSI RAID DPT controller must have a UPS.

Note: *The commercial name of the SNX 200/400/RS Systema and SNX 200/400/RM Systema remains unchanged for the 100, 133 and 166 MHz, Narrow or Wide versions. For simplicity and whenever necessary, this guide will distinguish between these versions as follows:*

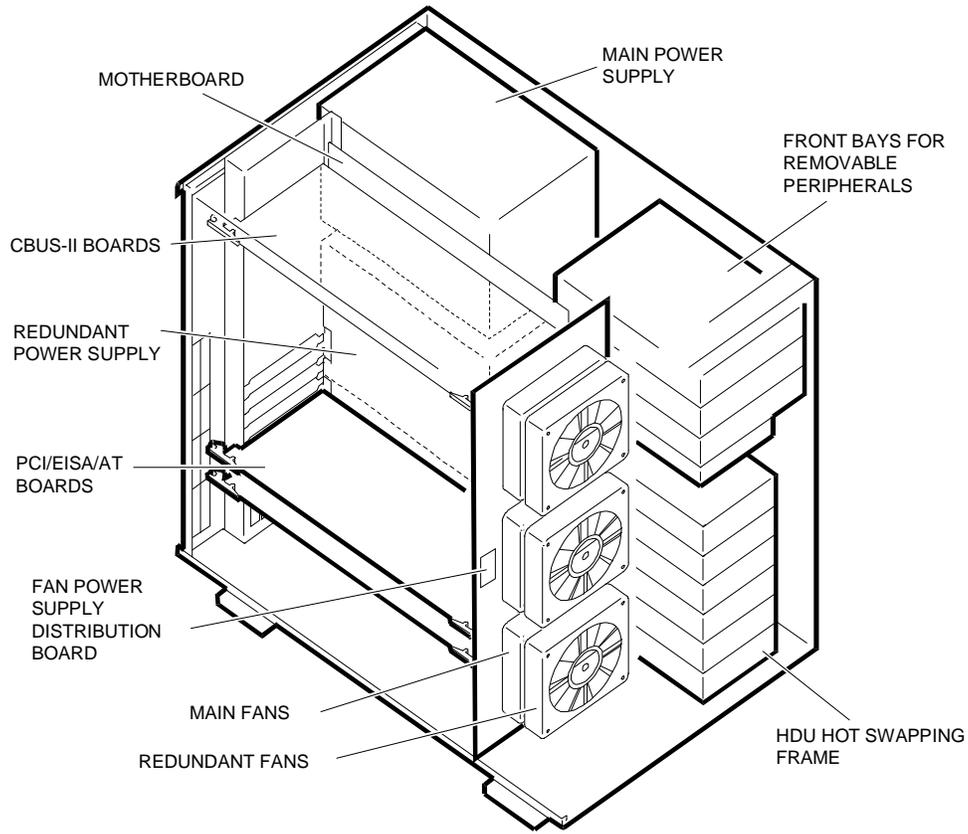
- SNX 200/400/RS 100, SNX 200/400/RM 100 (100 MHz Narrow box versions)
- SNX 200/400/RS 133, SNX 200/400/RM 133 (133 MHz Narrow box versions)
- SNX 400/RS 133 W, SNX 400/RM 133 W (133 MHz Wide box versions)
- SNX 400/RS 166 W, SNX 400/RM 166 W (166 MHz Wide box versions).

Note: *The systems in a 19" rack differ from those in a Silver box for the possibility of being hosted in a Rack module which also contains other components such as monitor, keyboard, UPS, PEM.*

Note: *The PdG does not offer any kit that can be used to convert a system with a Narrow Silver or Rack cabinet into one with a Wide Silver or Rack cabinet. This operation can only be performed by the field engineer who will have to proceed as follows:*

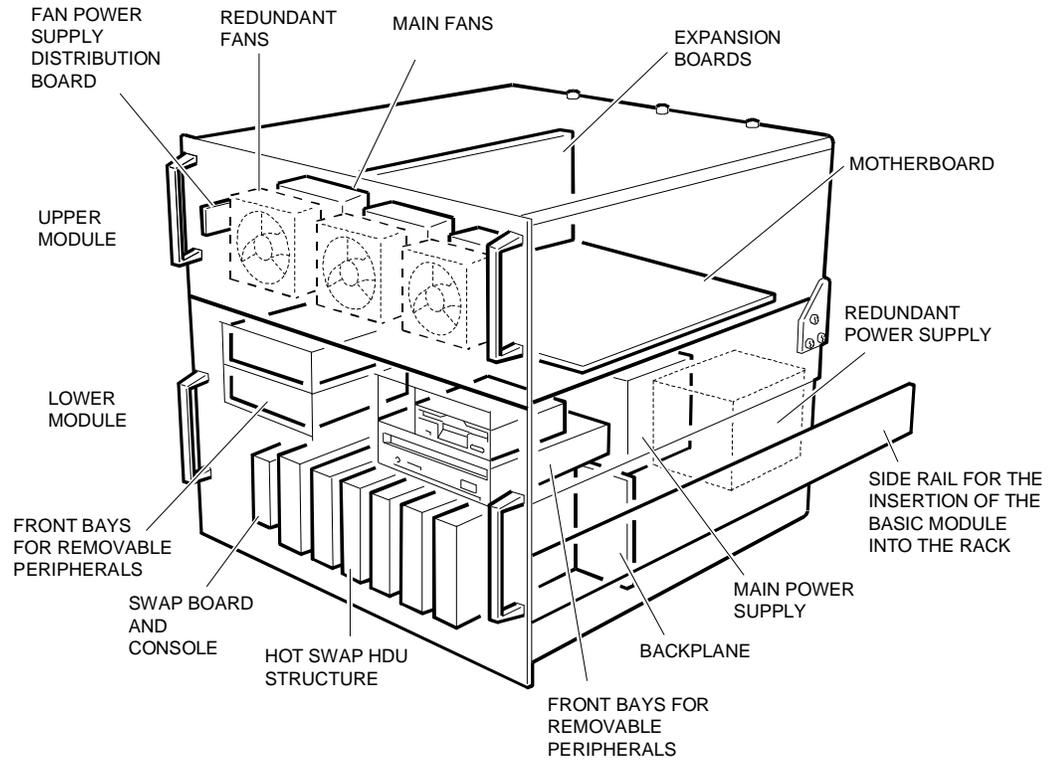
- Replace the Dagger SCSI Narrow or RAID DPT GO2061 controller with the Lance SCSI Wide or RAID DPT GO2098 controller.
- Replace the SCSI Narrow IF2019 backplane with the SCSI Wide IF2046 back plane.
- Replace the SCSI Narrow cable (code 589377A) equipped with two connectors for connection between the SCSI controller and the SCSI Narrow backplane, with the SCSI Wide cable (code 564166V). If the system is in a Duplexing configuration, also replace the SCSI cable of the second channel on the backplane with the SCSI Wide cable (code 564166V).

SNX 200/RS AND SNX 400/RS BASIC MODULE



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SNX 200/RM AND SNX 400/RM BASIC MODULE



UPDATE LEVELS OF THE MAIN COMPONENTS ON THE FIRST SERIES SNX 200/RS 100 SYSTEMA MODELS

MOTHERBOARD BA2179 Lev. 2.1 rev. F7	CPU BOARD GO2056 Lev. 2.2 rev. C	BRIDGE BOARD IF2018 Lev. 3.0 rev. G3
BIOS Rev. 1.02	RAID DPT SCSI CONTR. GO2061 Lev. Nasc FW 6C6	DAGGER SCSI CONTROLLER GO624 Lev. Nasc
POWER SUPPLY PS45 Lev. 02	USER DISKETTE Conf. 1.01 upd. 2, Diagn. 1.01	SYSTEM TEST Rel. 1.01

UPDATE LEVELS OF THE MAIN COMPONENTS ON FIRST SERIES SNX 400/RS 100 SYSTEMA MODELS

MOTHERBOARD BA2178 Lev. Nasc rev. B4	CPU BOARD GO2078 Lev. Nasc	BRIDGE BOARD IF2039 Lev. Nasc
BIOS Rev. 1.04	RAID DPT SCSI CONTR. GO2061 Lev. 01 FW 6CX	MEMORY BOARD ME2037 Lev. Nasc
POWER SUPPLY PS45 Lev. 03	USER DISKETTE Conf. 1.03 upd 1, Diag. 1.02	SYSTEM TEST Rel. 1.02

UPDATE LEVELS OF THE MAIN COMPONENTS ON THE FIRST SERIES SNX 200/RM 100 SYSTEMA MODELS

MOTHERBOARD BA2193 Lev. 01	CPU BOARD GO2071 Lev. 01	BRIDGE BOARD IF2018 Lev. 02
BIOS Rev. 1.05	RAID DPT SCSI CONTR. GO2061 Lev. 02 FW 7E5	DAGGER SCSI CONTROLLER GO624 Lev. Nasc
POWER SUPPLY PS45 Lev. 03	USER DISKETTE Conf. 1.03 upd. 1, Diagn. 1.02	SYSTEM TEST Rel. 1.02

UPDATE LEVELS OF THE MAIN COMPONENTS ON THE FIRST SERIES SNX 400/RM 100 SYSTEMA MODELS

MOTHERBOARD BA2178 Lev. 01	CPU BOARD GO2078 Lev. Nasc	BRIDGE BOARD IF2039 Lev. Nasc
BIOS Rev. 1.05	RAID DPT SCSI CONTR. GO2061 Lev. 02 FW 7E5	MEMORY BOARD ME2037 Lev. Nasc
POWER SUPPLY PS45 Lev. 03	USER DISKETTE Conf. 1.03 upd 1, Diag. 1.02	SYSTEM TEST Rel. 1.02

UPDATE LEVELS OF THE MAIN COMPONENTS ON THE FIRST SERIES SNX 200/RS/RM 133 SYSTEMA MODELS

MOTHERBOARD BA2179 Lev. 2.1 rev. F7	CPU BOARD UC2005 Lev. Nasc	BRIDGE BOARD IF2037 Lev. Nasc
BIOS Rev. 1.08	RAID DPT SCSI CONTR. GO2061 Lev. 03 FW 7EB	DAGGER SCSI CONTROLLER GO624 Lev. Nasc
POWER SUPPLY PS45 Lev. 02	USER DISKETTE Conf. 1.05, Diagn. 1.03	SYSTEM TEST Rel. 1.04

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UPDATE LEVELS OF THE MAIN COMPONENTS ON THE FIRST SERIES SNX 400/RS/RM 133 SYSTEMA MODELS

MOTHERBOARD BA2178 Lev. Nasc rev. B4	CPU BOARD UC2005 Lev. Nasc	BRIDGE BOARD IF2037 Lev. Nasc
BIOS Rev. 1.08	RAID DPT SCSI CONTR. GO2061 Lev. 03 FW 7EB	MEMORY BOARD ME2037 Lev. Nasc
POWER SUPPLY PS45 Lev. 03	USER DISKETTE Conf. 1.05, Diag. 1.03	SYSTEM TEST Rel. 1.04

UPDATE LEVELS OF THE MAIN COMPONENTS ON THE FIRST SERIES SNX 400/RS/RM 133 W AND 166 W SYSTEMA MODELS

MOTHERBOARD BA2236 Lev. Nasc.	CPU BOARD UC2005 Lev. Nasc.	BRIDGE BOARD IF2044 Lev. Nasc
BIOS Rev. 1.10	RAID DPT SCSI CONTR. GO2098 Lev. Nasc FW F74	MEMORY BOARD ME2037 Lev. 01
POWER SUPPLY PS45 Lev. 03	USER DISKETTE Conf. 1.05, Diag. 1.03	SYSTEM TEST Rel. 1.04

Note: All the evolutions of the above components are explained in the respective sections further on.

OPERATING SYSTEMS

	Release Tested with Product Availability	Certific. for Mono. Proc.	Certific. for Multipro. Systems	Additional Software for Multipro. Systems	Notes
DOS/Windows WfW	DOS 6.22 WfW 3.11	Yes	No		DOS for single-user, single-task, Windows for graphics environments.
Windows 95	Beta	Yes	N.A.		
Windows NT Server and	3.5	Yes	Yes	HAL Setup	For network management. HAL Setup is provided with the Starter Kit.
Windows NT Server and Service pack 3.0 *	3.51	Yes	Yes	O.S. included	For network management. HAL Setup is provided with the Starter Kit.
Netware 3.x	3.12	Yes	No		For network management.
Netware 4.x	4.1	Yes	No		For network management.
UnixWare	2.0.1 2.02c *	Yes	Yes	O.S. included for up to 2 CPUs. For the 3 rd and 4 th , Unixware Applic. Server	For multiple-user, multiple-task environments. Unixware Application Server is distributed by Novell.
SCO Unix and SCO Open Server Enterprise	3.2.4.2 3.0.0	Yes (+SLS for SCO)	Yes (+SLS for SCO and EFS for SCO)	SCO MPX 3.0 + patch UOD393C	For multiple-user, multiple-task environments. MPX is distributed by SCO, while SLS and EFS for SCO are provided in the Starter Kit.
SCO Open Server and Supplement release 5.0.0d *	5.0	Yes	Yes	O.S. included	For multiple-user, multiple-task environments. Supplement Release 5.0.0d is distributed by SCO.
Olivetti Unix SVR4.0	V2.4.1	Yes (+ LARK patch)	Yes (+ LARK patch)	O.S. included	For multiple-user and multiple-task environments. Patch distributed by Oliservice.
IBM OS/2 +Fix Pack98	2.11 WARP 3.0	Yes	No		For single-user, multiple-task environments.

Note: The operating systems and releases marked by an asterisk have been tested upon release of the SNX 200/400/RS/RM 133 and SNX 400/RS/RM 133 W and 166 W systems.

MONITORS

MODELS	DESCRIPTION	SUPPLIER	PDG NAME
MDU 1441	14", VGA, flat-screen, monochrome monitor (for N. America, Canada and N. Europe, 110 V). Label: DSM 25-314/P-Y	Philips	DSM 25-314/P-Y
MDU 1441/LE	14", VGA, low emission, positive monochrome monitor. Label: MDU 1441E/PH01	Philips	DSM 26-314/LE
CDU 1438/GN	14", VGA, 0.28 dp. high res. color monitor.	Goldstar	DSM 28-142 PS
CDU 1460MS	14", VGA, high resolution, multifrequency, ergonomic color monitor. Label: CDU 1460MS/HY01	Hyundai	DSM 28-144/MS
CDU 1438/SE	14", VGA, high resolution, 0.39 dp color monitor.	Lite-On	DSM 28-039
CDU 1448G/LO	14", VGA Plus, SVGA, 0.28 dp, MPR II/PS color monitor	Lite-On	DSM 50-148
CDU 1448G/HY	14", VGA Plus, SVGA, 0.28 dp, MPR II/PS color monitor	Hyundai	DSM 50-149
CDU 1460/MS	14", VGA Plus, SVGA, 0.28 dp, MPR II/PS/DDC1, 64 KHz, Multifunct. color monitor	Hyundai	DSM 50-144
CDU 1564/MS	15", flat screen, VGA Plus, SVGA, 0.28 dp, MPR II/O.S., FTS, Multisync. color monitor	Hyundai	DSM 50-151
CDU 1786/D	17", flat screen, VGA Plus, SVGA, 0.25 dp, MPR II/PS/DDC1, 82 KHz Diamond, Tron Tub. color monitor	Mitsubishi	DSM 50-175

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Note: Basic system models can be equipped with a remote terminal instead of a monitor and keyboard. This feature is controlled by the BIOS and activated by the User Disk. The remote terminal feature is not available on resilience systems or on any system equipped with a SCSI RAID controller. Appendix G gives information on this feature.

MAGNETIC PERIPHERALS

MODEL	TYPE	INT.	CAP.	SIZE	PDG NAME
Y-E Data YD-702D-6037D Sony MPF520-3 Mitsumi D359T3 Mitsumi D359T5 Epson SMD 1340 P-031	MFD	SA450	1.44 MB	3.5"	Under BU
Panasonic JU475-5 C08 Panasonic JU475-5 A08W	MFD	SA450	1.2 MB	5.25" HH	MFD 40-120
Wangtek 5150 ES-ACA	STU	SCSI	150/250 MB	5.25" HH	STS 26-150
Wangtek 5525 ES-ACA	STU	SCSI	320/525 MB	5.25" HH	STS 26-321
Wangtek 51000HT (standard front panel)	STU	SCSI	1/1.2 GB	5.25" HH	STS 1G-95
Hewlett Packard HP 35480A	DAT	SCSI	2/8 GB	3.5"	DAT 4000
Hewlett Packard HP C1536A	DAT	SCSI	2/8 GB	3.5"	DAT 4000/S
Hewlett Packard HP C1536A Sony SDT-4000 (with mechanical adapter for 5.25" bays)	DAT	SCSI	2/8 GB	3.5"	DAT 4000DDS
Hewlett Packard HP C1533A	DAT	SCSI	4/16 GB	3.5"	DAT DDS2-4G
Hewlett Packard HP C1533A Sony SDT-7000 (with mechanical adapter for 5.25" bays)	DAT	SCSI	4/16 GB	3.5"	DAT 8000DDS2
Panasonic CR-503-B (2X)	CD-ROM	SCSI	650 MB	5.25" HH	CDR TRAY 503
Sony CDU76S (4X) Panasonic CR-504-J (4X)	CD-ROM	SCSI	650 MB	5.25" HH	CDR 4S-500
Panasonic CR-506-B (8X)	CD-ROM	SCSI	650 MB	5.25" HH	CDR 8S-500
Seagate ST3620NC (SCA conn.)	HDU Narrow	SCSI	525 MB	3.5" x 1"	HDR 525 (Narrow cabinet only)
Seagate ST31200NC (SCA conn.)	HDU Narrow	SCSI	1.05 GB	3.5" x 1"	HDR 1G (Narrow cabinet only)
Seagate ST31230WC (SCA conn.)	HDU Wide	SCSI	1.05 GB	3.5" x 1"	HDR 1G
Seagate ST32430WC (SCA conn.) Seagate ST32151WC (SCA conn.) IBM DCAS-32160 (SCA conn.)	HDU Wide	SCSI	2.1 GB	3.5" x 1"	HDR 2G
Seagate ST32550WC (SCA conn.)	HDU Wide	SCSI	2.1 GB	3.5" x 1"	
Seagate ST15230WC (SCA conn.)	HDU Wide	SCSI	4.2 GB	3.5"	HDR 4G

Note: The HDUs compatible for the system and for the PEM are hot-swappable models fitted on an appropriate slide-in support and equipped with an 80-pin SCA (Single Connector Attachment) interface for direct connection to the system and PEM backplane.

ELECTRONIC BOARDS

BOARD NAME	DESCRIPTION	BUS	PDG NAME
BA2179 BA2193 BA2241	Motherboard for the SNX 200. Equipped with 12 expansion slots, 8 DIMM expansion sockets (from 32 MB to 256 MB ECC), Super VGA video controller, 1 socket to expand video memory from 512 KB to 1 MB, 256 KB of BIOS Flash EPROM, floppy disk controller, 2 serial ports, parallel port, keyboard and mouse management.	-	Under BU
	512 KB video RAM expansion chip.	-	VGA-MEM/02
BA2178 BA2236	Motherboard for the SNX 400. Equipped with 15 expansion slots, Super VGA video controller, 1 MB of video RAM, 256 KB of BIOS Flash EPROM, floppy disk controller, 2 serial ports, parallel port, keyboard and mouse management.	-	Under BU
GO2056 GO2071	CPU board for the SNX 200/RS/RM 100. Equipped with a 100/66 MHz Pentium 100 processor installed in a ZIF socket 5, a 512 KB second level parity-burst cache and relative socket for cache expansion to 1 MB. This system can host one or two CPU boards.	CBus-II	Under BU or APU SNX200
	512 KB cache expansion SIMM.	-	CACHE SNX200-5
GO2078	CPU board for the SNX 400/RS/RM 100. Equipped with a 96/64 MHz Pentium 100 processor installed in a ZIF socket 5, a 512 KB second level parity-burst cache and relative socket for cache expansion to 1 MB. This system can host from one to four CPU boards.	CBus-II	Under BU or APU SNX400
	512 KB cache expansion SIMM.	-	CACHE SNX200-5
UC2004-100 UC2005-100	CPU board for the SNX 200/400/RS/RM 100. Equipped with a 100/66 MHz Pentium 100 processor installed in a ZIF socket 7, a 512 KB second level parity-burst cache and relative socket for cache expansion to 1 MB. The SNX 200 can host one or two CPU boards while the SNX 400 can host one to four.	CBus-II	Under BU or APU SNX200 or APU SNX400
	512 KB cache expansion SIMM.	-	CACHE SNX200-5
UC2004-133 UC2005-133	CPU board for the SNX 200/400/RS/RM 133. Equipped with a 133/66 MHz Pentium 133 processor installed in a ZIF socket 7, a 512 KB second level parity-burst cache and relative socket for cache expansion to 1 MB. The SNX 200 can host one or two CPU boards while the SNX 400 can host one to four.	CBus-II	Under BU or APU SNX33/240
	512 KB cache expansion SIMM.	-	CACHE SNX200-5
UC2005-166	CPU board for the SNX 400/RS/RM 166. Equipped with a 166/66 MHz Pentium 166 processor installed in a ZIF socket 7, a 512 KB second level parity-burst cache and relative socket for cache expansion to 1 MB. This system can host from one to four CPU boards.	CBus-II	Under BU or APU SNX66/400
	512 KB cache expansion SIMM.	-	CACHE SNX200-5
IF2018 / IF2039 IF2037/44 ASIC	CBUS-II - PCI Bridge board. Board IF2018/2039 uses ACTEL discrete components and supports up to 512 MB of memory. On board IF2037/IF2044, the ACTEL components are replaced by an ASIC component, and this board supports up to 1 GB of memory.	Spec.	Under BU

BOARD NAME	DESCRIPTION	BUS	PDG NAME
ME2037	ECC memory board with 16 DIMM sockets (4 banks). The minimum memory capacity is 32 MB expandable to 512 MB. The SNX 200 can host only one memory board while the SNX 400 can host up to two.	CBus-II	Under BU or MEM 200
GO624 (Dagger)	Single-channel SCSI-2 Narrow Single-Ended SCSI controller for the SNX 200/400/RS/RM 100 and 133. Controller based on the Adaptec AIC 7850 (Dagger) chip.	PCI	Under BU or SCC PCI 101
GO2124 (Dagger)	Single-channel SCSI-2 Narrow Single-Ended SCSI controller for all systems (replaces the GO624). Controller based on the Adaptec AIC 7850 (Dagger) chip.	PCI	Under BU or SCC PCI 101E
GO2109 (Lance)	Single-channel SCSI Wide Single-Ended SCSI controller for the SNX 400/RS/RM 133 W and 166 W. Controller based on the Adaptec AIC 7870 (Lance) chip.	PCI	Under BU or SCC PCI 114W
GO2061 (PM3224) (RAID DPT)	Single/tri-channel SCSI-2 Narrow Single-Ended SCSI controller for the SNX 200/400/RS/RM 100 and 133, with RAID-0, 1, 5 arrays for hot swapping performance. The second and third channels are optional and are obtained by adding a board in the two connectors on the controller. The controller also contains four cache memory sockets; 4 MB are always installed in one socket.	PCI	Under BU or DCR PCI1/3
IF2020 (SX4000/1)	Piggy back board for a second SCSI Narrow channel (external only) on the GO2061, internal SCSI Narrow cable for the connection between this board - SCSI connectors flush with the case, EPROM firmware.	-	EXP 2NDSCSI
IF2021 (SX4000/2)	Piggy back board for a second and third SCSI Narrow channel (external only) on the GO2061, two internal SCSI Narrow cables for the connection between this board - SCSI connector flush with the case, EPROM firmware.	-	EXP 2&3SCSI
GO2098 (PM3334W) (RAID DPT)	Single/tri-channel SCSI Wide Single-Ended SCSI controller for all systems, with RAID-0, 1, 5 arrays for hot swapping performance. The second and third channels are optional and are obtained by adding a board in the two connectors on the controller. The controller also contains four ECC cache memory sockets; 4 MB are always installed in one socket. On the SNX 200/400/RS/RM 100 and 133 systems this controller is only used for connection to the PEM Wide.	PCI	Under BU or DCR PCI1/3W
IF2048 (SX4030/1W)	Piggy back board for a second and third SCSI Wide channel (external only) on the GO2098, internal SCSI Wide cable for the connection between this board - SCSI connector flush with the case.	-	EXP 2NDSCSIW
IF2049 (SX4030/2W)	Piggy back board for a second and third SCSI Wide channel (external only) on the GO2061, two internal SCSI Wide cables for the connection between this board - SCSI connectors flush with the case.	-	EXP 2&3SCSIW
MEM 2027 (SM4000/4)	One 4 MB ECC SIMM for cache expansion on the GO2061 and GO2098 controllers. Maximum expansion of 16 MB is obtained by using three kits. Only 4 MB and 16 MB configurations are supported.	-	RACME 04
IF2019	SCSI Narrow backplane for the SNX 200/400/RS/RM 100 and 133, for connecting the HDU to the SCSI controller and to the power supply.	-	Under BU and PEM Narrow
IF2046/2067	SCSI Wide backplane for the SNX 400/RS/RM 133 W and 166 W, for connecting the HDU to the SCSI controller and to the power supply.	-	Under BU and PEM Wide

BOARD NAME	DESCRIPTION	BUS	PDG NAME
IF2012 / IF2031	Swap Board for console LED interface.	-	Under BU and PEM
IF2022	Jumper board for joining the backplane two SCSI buses. Used in non-duplexing configurations.	-	Under BU and PEM
IF2024	Terminator board used to separately terminate the two SCSI buses on the basic module backplane. For duplexing configurations only. This kit also contains an internal SCSI (Narrow or Wide) cable for backplane-SCSI controller connections.	-	DUP KIT200 DUPKIT240RM DUPKIT240W DUP KIT240RM/W
IF2015	Fan power distribution board.	-	Under BU and PEM
IF2025 / IF2035	Power supply parallelism board for RS systems. In addition to this board, the redundancy kit includes a second PS45 power supply, three fans with relative support, a motherboard-IF2025/35 connection cable, an IF2025/35-SCSI backplane connection cable and a current share cable for connecting two power supplies. The board is also present in the PEM RS redundancy kit.	-	RED KIT200
IF2034	Power supply parallelism board for RM systems. In addition to this board, the redundancy kit includes a second PS45 power supply, three fans with relative support, a motherboard-IF2034 connection cable, an IF2034-SCSI backplane connection cable and a current share cable for connecting two power supplies. The board is also present in the PEM RM redundancy kit.	-	RED KIT240RM
GO2057 (Stallion)	Multiport board with 32 RS232D channels. This kit also contains the cable for connection to the DBOX.	EISA	C-MUX8-32E
BOX 800	8-way RS232D distribution box for Stallion (max 4).	-	DBOX 800
BOX 1600	16-way RS232D distribution box for Stallion (Max 2).	-	DBOX 1600
GO527+IF412	Ethernet/Cheapernet intelligent LAN controller. Not compatible with the SNX 200/400 133 MHz.	AT	NPU 9145
GO539+IF412C	Ethernet/Cheapernet LAN controller.	EISA	NCU 9180
GO530C+IF411/S	Ethernet 10BT LAN controller.	AT	NCU 9143/S
	Token Ring 16/4 Mbps LAN controller.	AT	NCU 9172
	Token Ring LAN controller.	EISA	NCU 9182
	Ethernet Foirl LAN controller.	EISA	NCU 9195
(Supplier Olicom)	Ethernet/Cheapernet (ex NCU 9141-II) LAN controller.	AT	OC 2121/II
(Supplier Olicom)	Ethernet 10BT (ex NCU 9143/S) LAN controller.	AT	OC 2122/II
(Supplier Olicom)	Ethernet 10B2, 10B5, 10BT LAN controller.	AT	OC 2123/II
(Supplier Olicom)	Ethernet 10B5, 10BT LAN controller.	AT	OC 2125/II
(Supplier Olicom)	Token Ring 16/4 Mbps (ex NCU 9172) LAN controller.	AT	OC 3117
(Supplier Olicom)	Token Ring (driver rel. 1.8 is required) LAN controller This board is currently not available for the SNX 400/RS.	EISA	OC 3135
(Supplier Z'NYX)	Ethernet 10B2, 10BT LAN controller.	PCI	ZX312
(Supplier 3Com)	Ethernet 10B2, 10B5 LAN controller.	EISA	3C579
(Supplier 3Com)	Ethernet 10B5, 10BT LAN controller.	EISA	3C579-TP
GO573A+IF479	2V24 intelligent WAN controller.	AT	LPU 2400
GO573A+IF482	X21 intelligent WAN controller.	AT	LPU 2100
GO573	V24 intelligent WAN controller.	AT	LPU 24
GO573A+IF480	V35 intelligent WAN controller.	AT	LPU 3500

BOARD NAME	DESCRIPTION	BUS	PDG NAME
GO573A+IF481	V36 intelligent WAN controller.	AT	LPU 3600

POWER SUPPLIES AND SPS

POWER SUPPLY	OUTPUT VOLT.	TOLERANCE	MAX. CURR.	TOT. POW.	INPUT VOLTAGE	FREQ.	CABINET
PS45	+5 V	+5% -4%	52 A	450 W	100-120 Vac 200-240 Vac	50/60 Hz	Base and PEM
	+12 V	+5% -4%	11 A				
	-12 V	+10% -10%	0.5 A				
	-5 V	+5% -5%	0.2 A				
	+5 Aux	+5% -5%	0,6 A				
	+3.43 V	+5% -4%	36.4 A				
	Fan Out.	-6.4 V / -13.5 V	1.6 /3.6				

Note: The Fan Output voltage is controlled by a temperature sensor which detects the air temperature inside the power supply.

UPS	POT. TOT.	VERSION	INPUT VOLTAGE	OUTPUT VOLTAGE	CAB.
APC - SMART UPS 900 VA	630 W	100/120 Vac	100/120 Vac 50/60 Hz	100/115 Vac 50/60 Hz	External
APC - SMART UPS 1250 VA	900 W				
APC - SMART UPS 2000 VA	1500 W				
APC - SMART UPS 1000 VA (*) (**)	670 W	220/240 Vac	220/240 Vac 50/60 Hz	225/240 Vac 50/60 Hz	
APC - SMART UPS 1400 VA (*) (**)	950 W				
APC - SMART UPS 2200 VA (*) (**)	1600 W				
APC - SMART UPS 3000 VA (*) (**)	2250 W				

(*) = New APC models that replace the previous versions.

(**) = New models also available in 19" rack versions for connection to the SNX 200/400/RM.

Note: By connecting the UPS and system by means of the RS232 serial interface and with the support of the PowerChute Plus software, specific for each operating system and available on diskette, a complete setting of the UPS hardware can be made. This program displays the status of the UPS on the system monitor, but its main feature is to perform a programmed system shutdown in the event of extended line voltage failures. In addition, it is also runs a number of personalized operations and functions.

Note: Besides having different power ratings, the main differences between the older and newer models are the following:

- On the newer models, the possibility of installing a LAN board in the appropriate slot so that the UPS can be connected in a network.
- On the newer models, the possibility for the operator to replace the batteries without needing to remove the power supply from the load.

Note: The UPS model is selected according to the power required by the system, and must be backed up by any external module connected to it such as, for example, a PEM.

SERIAL AND PARALLEL CONNECTION CABLES

PDG	VAR.	DESCRIPTION	LENGTH (m)	CONNECTORS
CBL 2934	-	Cross-wired serial cable for DBOX to printer connections	3	RJ45 - Cannon 8 M - 25 M
CBL 2935	-	Straight serial cable for DBOX to printer connections	3	RJ45 - Cannon 8 M - 25 M
CBL 2938	-	Cross-wired serial cable for DBOX to WS or printer connections	3	RJ45 - Cannon 8 M - 25 F
CBL 5360	-	Cross-wired serial cable for serial port to printer connections	3	Cannon D-shell 25 M - 9 F
CBL 5361	-	Straight serial cable for serial port to modem connections	3	Cannon D-Shell 25 M - 9 F
CBL 5362	-	Cross-wired serial for serial port to WS or printer connections	3	Cannon D-shell 25 M - 9 F
CBL 2491	CAV145	Parallel cable for parallel port to peripheral connections	1.5	Cannon - Centronics 25 M - 36 M
	CAV146		3	
CBL 2858	CAV 143	Straight serial extension cable for modem or printer connections. Used as an extension for cables CBL 5360, CBL 2934, CBL 5361 and CBL 2935.	3	Cannon - Cannon 25 F - 25 M
	CAV 144		6	

3

INTERRUPT LEVELS

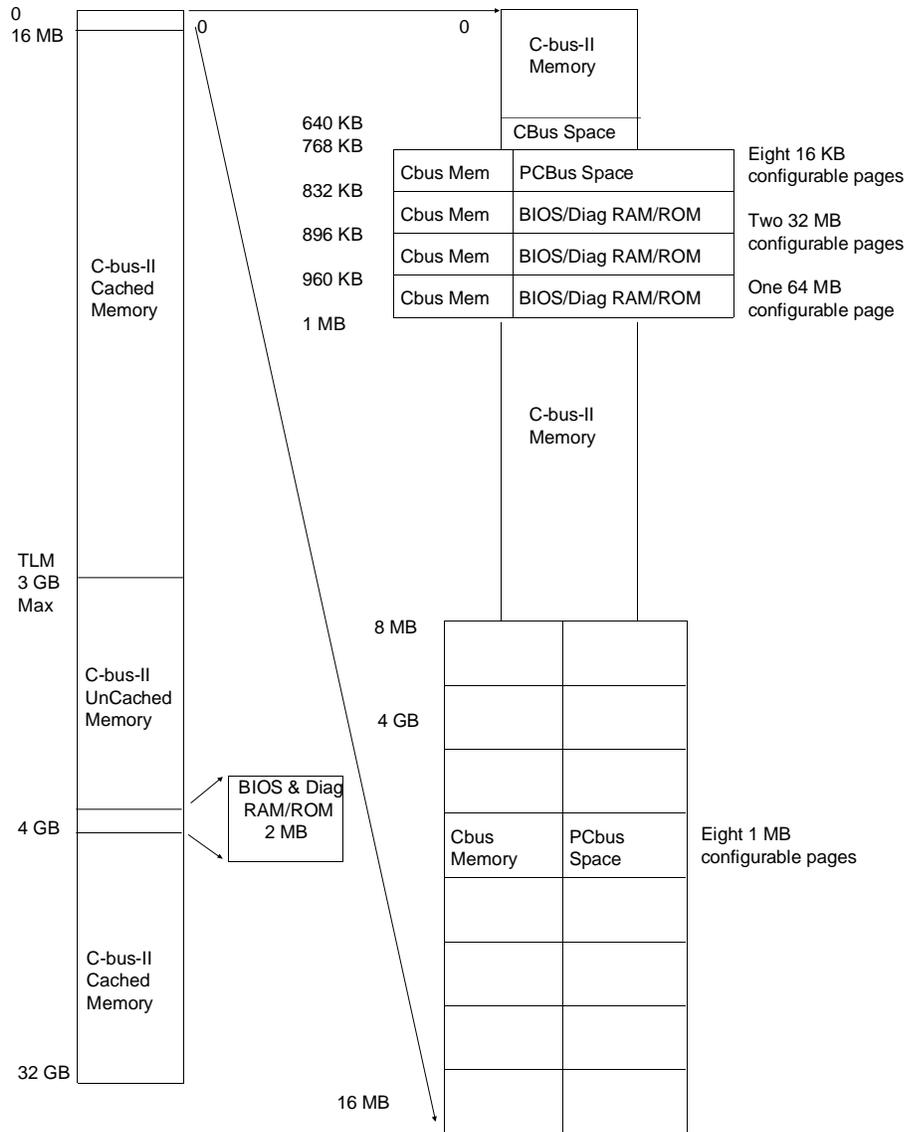
NAME	STATUS	FUNCTION	NOTES
NMI		Fatal errors: ECC error in RAM or on CBUS-II, bus time out, CPU board parity error	Parity error, channel control, bus master timeout, debugging port
IRQ0	Reserved	System timer	Internal timer used by the BIOS
IRQ1	Reserved	Keyboard	
IRQ2	Free		Used as alternative to IRQ9
IRQ3		COM2	Also used for the console
IRQ4		COM1	Also used for the console
IRQ5	Free		Free or SCSI controller
IRQ6		Floppy disk controller	
IRQ7		LPT1	
IRQ8	Reserved	Real Time Clock	
IRQ9	Free		Used as alternative to IRQ2. IRQ9 is preferably used on ISA LAN boards
IRQ10		Dagger SCSI Controller	Free or Dagger SCSI controller
IRQ11	Free		Used for EISA LAN or COM1
IRQ12		PS/2-compatible mouse	
IRQ13	Reserved	Math coprocessors	
IRQ14	Free		
IRQ15		RAID SCSI controller	Free or RAID SCSI controller

Note: IRQs 2 and 9 belong to the same line and must therefore be used in alternative to each other.

DMA CHANNELS

DMA	FUNCTION	DMA	FUNCTION
0	Free	4	Reserved
1	Free or parallel port if the extended mode (ZIPPY) is enabled	5	Free
2	FDU transfers	6	Free
3	Free	7	Free

SYSTEM MEMORY MAP



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I/O ADDRESS MAP

ADDRESS	DESCRIPTION	PHYSICAL LOCATION
0000h - 000Fh	DMA controller (0-3)	ESC
0010h - 001Fh	Reserved	
0020h - 0021h	Programmable interrupt controller 1	ESC
0022h	ESC Configuration Address Index register	ESC
0023h	ESC Configuration Data Index register	ESC
0024h - 003Fh	Reserved	Alias ESC
0040h - 0043h	Timer 1	ESC
0044h - 0047h	Reserved	
0048h - 004Bh	Timer 2	ESC

ADDRESS	DESCRIPTION	PHYSICAL LOCATION
004Ch - 005Fh	Reserved	
0060h	Keyboard controller	8742
0061h	Control and NMI status register	ESC
0062h - 0063h	Reserved	
0064h	Keyboard controller	8742
0065h - 006Fh	Reserved	
0070h	NMI Mask register/RTC address register	ESC/RTC
0071h	RTC data register	RTC
0072h - 007Fh	Reserved	
0080h - 008Fh	DMA page register	ESC
0090h - 0091h	Reserved	
0092h	System Control Port register	ESC
0093h - 009Fh	Reserved	
00A0h - 00A1h	Programmable interrupt controller 2	ESC
00A2h - 00BFh	Reserved	Alias
00C0h - 00DFh	DMA controller 2	ESC
00E0h - 00EFh	Reserved	
00F0h	IRQ13 reset register	ESC
00F1h - 0101h	Reserved	
0102h	SVGA enable register	GD5422
0103h - 01EFh	Free	
01F0h - 01F7h	Hard disk drive	EISA Bus
01F8h - 0277h	Free	
0278h - 027Ah	Parallel port 3 (LPT3)	FDC37C665
027Bh - 02F7h	Free	
02F8h - 02FFh	Serial port 2	FDC37C665
0300h - 0371h	Free	
0372h	Secondary Floppy Disk Digital Output register	ESC
0373h - 0377h	Free	
0378h - 037Bh	Parallel port 1 (LPT1)	FDC37C665
037Ch - 03AFh	Free	
03B0h - 03BBh	Video controller	GD5422
03BCh - 03BEh	Parallel port 2 (LPT2)	FDC37C665
03BFh	Free	
03C0h - 03CFh	Video controller	GD5422
03D0h - 03D3h	Free	
03D4h - 03DCh	Video controller	GD5422
03DEh - 03EFh	Free	
03F0h	Configuration address index register	FDC37C665
03F1h	Configuration data index register	FDC37C665
03F2h	Primary floppy disk digital output register	ESC/FDC37C665
03F3h - 03F7h	Floppy disk controller	FDC37C665
03F8h - 03FFh	Serial port 1	FDC37C665

ADDRESS	DESCRIPTION	PHYSICAL LOCATION
0400h - 040Fh	DMA controller 1	ESC
0410h - 043Fh	DMA Scatter-Gather register	ESC
0440h - 0460h	Free	
0461h	Extended NMI and reset control registers	ESC
0462h	NMI I/O interrupt port control register	ESC
0463h	Free	
0464h	Last EISA bus master granted register	ESC
0465h - 047Fh	Free	
0480h - 048Fh	DMA 1 chan. 0-7 High Page control registers	ESC
0490h - 04C1h	Free	
04C2h	Reserved	
04C3h - 04C5h	Free	
04C6h	DMA chan. 5 High CCR control register	ESC
04C7h - 04C9h	Free	
04CAh	DMA chan. 6 High CCR control register	ESC
04CBh - 04CDh	Free	
04CEh	DMA chan. 7 High CCR control register	ESC
04CFh	Free	
04D0h - 04D1h	Interrupt Edge/Level control registers	ESC
04D2h - 04D3h	Reserved	
04D4h - 04FFh	DMA extended registers	ESC
0500h - 07FFh	Free	
0800h - 08FFh	EISA Configuration RAM	
0900h - 0BFFh	Free	
0C00h	Configuration RAM page register	ESC
0C01h - 0C03h	Free	
0C04h - 0C06h	Motherboard configuration register	Motherboard (PAL)
0C07h - 0C7Fh	Free	
0C80h - 0C83h	Motherboard EISA ID register	
0C84h - 0CF7h	Free	
0CF8h - 0CFCh	PCMC configuration registers	PCMC
0CFDh - 46E7h	Free	
46E8h	SVGA control register	GD5422
46E9h - BFFFh	Free	
C000h - C0FFh	PCMC configuration registers	PCMC
C100h - C4FFh	Configuration area for PCI boards	PCI
C500h - C5FFh	PCEB configuration registers	PCEB
C600h - CFFFh	Configuration area or PCI boards	PCI

POWER ON DIAGNOSTICS MESSAGES

ERROR MESSAGES	DESCRIPTION
SYSTEM BOOTSTRAP ERROR MESSAGES	
Non-System Disk or Disk Error Replace Disk and Strike Any Key	A damaged diskette, or one without the bootable file, has been inserted in drive A at system power on. The diskette must be replaced by a suitable diskette. It may also be that the drive and the diskette are not compatible, that the drive is not set correctly in the ROM Setup utility, check.
No ROM BASIC Available - RESET	There is an error in the system BIOS if the error persists after a reset. Replace the CPU board and rewrite the BIOS flash EPROM.
CPU CACHE MEMORY TEST ERROR MESSAGES	
Primary Cache Addr Line Error	Primary cache error. Run the diagnostics, replace the processor or the CPU board.
Primary Cache Flush Error	Primary cache error. Run the diagnostics, replace the processor or the CPU board.
Primary Cache INVD Error	Primary cache error. Run the diagnostics, replace the processor or the CPU board.
Primary Cache Read/Write Error	Primary cache error. Run the diagnostics, replace the processor or the CPU board.
Secondary Cache Addr Line Error	Secondary cache error. Run the diagnostics, replace the processor or the CPU board.
Secondary Cache Copy-Back Error	Secondary cache error. Run the diagnostics, replace the processor or the CPU board.
Secondary Cache Gate A20 Line Error	Secondary cache error. Run the diagnostics, replace the processor or the CPU board.
Secondary Cache Read/Write Error	Secondary cache error. Make sure that the jumper setting on the CPU board complies with cache memory capacity. Replace the cache module.
Secondary Cache Shadow RAM Error	Secondary cache error. Make sure that the jumper setting on the CPU board complies with cache memory capacity. Replace the cache module.
Tertiary Cache Error	Replace the CPU board.
CPU ERROR MESSAGES	
Pentium CPU slot:xx, Ckpt:xx Error	Replace the processor.
DMA REGISTER ERROR MESSAGES	
DMA Address Register Error	DMA controller error. Run the diagnostics, replace the motherboard.
DMA Count Register Error	DMA controller error. Run the diagnostics, replace the motherboard.
DMA Mask Register Error	DMA controller error. Run the diagnostics, replace the motherboard.
DMA Page Register Error	DMA controller error. Run the diagnostics, replace the motherboard.
DMA Stop Register Error	DMA controller error. Run the diagnostics, replace the motherboard.
EISA/PCI CONFUIRATION ERROR MESSAGES	
ID Configuration Error in slot(s): xx	The slot x EISA ID stored in EEPROM does not match the true EISA ID. Either a new EISA board is installed in the slot or an existing board has been removed. Check by running the ECU.
ID Timeout Error in slot(s): xx	Timeout during the reading of the EISA ID of the board installed in slot x. Make sure the board is inserted in the slot, replace the board or the motherboard.
RAM/ROM Attribute Conflict Error in slot(s): xx	The memory attribute assigned to the board installed in slot x is in conflict with the attribute available for this memory range. Run the ECU.

ERROR MESSAGES	DESCRIPTION
C000: Seg RAM/ROM Attrib Conflict Error in slot(s): xx	The C000 range is set as RAM in slot x but the user configured the C000 range for shadowing purposes (as a ROM). Run the ECU.
C800: Seg RAM/ROM Attrib Conflict Error in slot(s): xx	The C000 range is set as RAM in slot x but the user configured the C000 range for shadowing purposes (as a ROM). Run the ECU.
D000: Seg RAM/ROM Attrib Conflict Error in slot(s): xx	The C000 range is set as RAM in slot x but the user configured the C000 range for shadowing purposes (as a ROM). Run the ECU.
D800: Seg RAM/ROM Attrib Conflict Error in slot(s): xx	The C000 range is set as RAM in slot x but the user configured the C000 range for shadowing purposes (as a ROM). Run the ECU.
Incomplete Configuration Error in slot(s): xx	The configuration in EEPROM of the board installed in slot x is incomplete. Run the ECU.
Invalid Configuration Error in slot(s): xx	Configuration error in EEPROM relating to the board installed in slot x. Run the ECU.
Invalid DMA Configuration Error in slot(s): xx	DMA configuration error in EEPROM relating to the board installed in slot x. Run the ECU.
Invalid IRQ Configuration Error in slot(s): xx	IRQ configuration error in EEPROM relating to the board installed in slot x. Run the ECU.
Invalid Memory Configuration Error in slot(s): xx	Memory configuration error. Check the installation of the DIMMs; run memory diagnostics.
Invalid Port Configuration Error in slot(s): xx	I/O port configuration error in EEPROM relating to the board installed in slot x. Run the ECU.
Invalid Slot Init Error in slot(s): xx	The POD have detected a configuration error in EEPROM relating to the board installed in slot x. Run the ECU.
Video RAM Attribute Error in slot(s): xx	The video RAM of the board installed in slot x is incorrectly set as a read-only or as a cacheable memory (video RAM is read/write only, and not cacheable). Run the ECU.
PCI Configuration in slot xx (Bus 00 device yy)	Configuration error. Insufficient system memory or buffer allocation error. Run the ECU to manually solve this configuration conflict.
FLOPPY DISK ERROR MESSAGES	
Floppy Disk CMOS Count Config Error	The floppy disk drive number configured in the EEPROM is not the same as the one detected by the POD. Run the ROM Setup utility, check the FDU signals and power cables.
Floppy Disk CMOS Type Configuration Error	The floppy disk drive number configured in the EEPROM is not the same as the one detected by the POD. Run the ROM Setup utility.
Floppy Disk Controller Config Error	The floppy controller is not configured correctly. Run the ROM Setup utility.
Floppy Disk Port 3F3h Media Sensing Error	Port 3F3h, which contains information on the type of floppy disk and support installed, has failed a compatibility test. Run the ROM Setup Utility, replace the motherboard.
Floppy Disk Port 3F3h Read/Write Error	Read/write operations on floppy disk port 3F3h are not performed correctly during the POD. Run the ROM Setup Utility, replace the motherboard.
KEYBOARD/ MOUSE ERROR MESSAGES	
Keyboard Controller Communication Error	Communication error with the keyboard controller. Run the diagnostics, check keyboard connection, replace the cable, keyboard, or motherboard.
Keyboard Controller Selftest Error	The keyboard controller selftest has failed. Run the diagnostics, replace the keyboard.
Keyboard/Pointing Device Fuse Error	Keyboard/mouse fuse blown. Replace the fuse.
Pointing Device Error	Mouse test error. Run the diagnostics, replace the mouse, or replace the motherboard.

ERROR MESSAGES	DESCRIPTION
Keyboard Clock/Data Line Error	Keyboard control signals are interrupted or short circuited. Run the diagnostics, check keyboard connection, replace the cable, keyboard, or the motherboard.
Keyboard Controller Error	Keyboard controller error. Run the diagnostics, replace the motherboard.
Keyboard Interrupt Error	Interrupt test failure on the keyboard controller. Run the diagnostics, replace the motherboard.
Keyboard Selftest Error	The keyboard selftest has failed. Run the diagnostics, replace the keyboard or the motherboard.
Keyboard Stuck Key Code: xxh Error	Stuck key condition detected on the keyboard; the scan code of the stuck key is displayed in hex format. Run the diagnostics, replace the motherboard.
COPROCESSOR ERROR MESSAGES	
CPU Math Coprocessor Config Error	The coprocessor is configured as being present, but it is not found, or the processor is configured as not being present but it has been found. Run the ROM Setup Utility, replace the CPU board.
CPU Math Coprocessor Exception Error	Internal processor error. Run the diagnostics, replace the CPU board.
CPU Math Coprocessor Interrupt Error	Internal processor error. Run the diagnostics, replace the CPU board.
CPU Math Coprocessor Logarithm Error	Internal processor error. Run the diagnostics, replace the CPU board.
CPU Math Coprocessor Stack Error	Internal processor error. Run the diagnostics, replace the CPU board.
CPU Math Coprocessor Trig Error	Internal processor error. Run the diagnostics, replace the CPU board.
MEMORY TEST ERROR MESSAGES	
Base Memory Adapter Parity Error in Slot: xx	Memory access error. Check the installation of the DIMMs. Replace the DIMMs, memory board or motherboard.
Base Memory Address Line Error at Addr: xxxxxxxh Wrote: xxxxxxxh Read: xxxxxxxh	Memory access error. Check the installation of the DIMMs. Replace the DIMMs, memory board or motherboard.
Base Memory Configuration Error	The base memory capacity configured is different than the capacity actually installed. Run the ROM Setup Utility and this error condition is automatically corrected.
Base Memory Dword Access Error at Addr: xxxxxxxh, Wrote: xxxxxxxh Read: xxxxxxxh	Memory access error. Check the installation of the DIMMs. Replace the DIMMs, memory board or motherboard.
Base Memory Read/Write Error at Addr: xxxxxxxh, Wrote: xxxxxxxh Read: xxxxxxxh	Memory access error. Check the installation of the DIMMs. Replace the DIMMs, memory board or motherboard.
Base Memory System Parity Error at Addr: xxxxxxxh, Wrote: xxxxxxxh Read: xxxxxxxh	Memory access error. Check the installation of the DIMMs. Replace the DIMMs, memory board or motherboard.
Extended Memory Adapter Parity error in Slot: xx	Parity error on the EISA/ISA board installed in slot x. Run the ECU, replace the board, replace the motherboard.
Extended Memory Address Line Error at Addr: xxxxxxxh Wrote: xxxxxxxh Read: xxxxxxxh	The DRAM address signals are interrupted or short circuited. Run the diagnostics, replace the CPU board.
Extended Memory Configuration Error	The base memory capacity configured is different than the capacity actually installed. Run the ROM Setup Utility and this error condition is automatically corrected.
Extended Memory Dword Access Error at Addr: xxxxxxxh Wrote: xxxxxxxh Read: xxxxxxxh	The DRAM address signals are interrupted or short circuited. Run the diagnostics, replace the CPU board.

ERROR MESSAGES	DESCRIPTION
Extended Memory Read/Write Error at Addr: xxxxxxxxh Wrote: xxxxxxxxh Read: xxxxxxxxh	DRAM read/write error or configuration error in EEPROM. Check the configuration, run the diagnostics, replace the DIMMs, replace the CPU board.
Extended Memory System Parity Error at Addr: xxxxxxxxh Wrote: xxxxxxxxh Read: xxxxxxxxh	System memory parity error. Check the installation of the DIMMs on the CPU board, run the diagnostics, replace the DIMMs, replace the CPU board.
Total Memory Configuration error	The base memory capacity configured is different than the capacity actually installed. Run the ROM Setup Utility and this error condition is automatically corrected.
FATAL ERROR, System Halted	Check the configuration of base memory, run the ECU.
Memory SIMM Mismatch Error in bank(s): x, x, x and more	The system DRAM is not correctly inserted in the respective sockets of different capacity DIMMs are installed in the same bank. Replace the DIMMs, run the diagnostics, replace the CPU board.
Memory SIMM Read/Write Error	Error during the read/write test performed on the bank containing 128 KB of base memory. Replace the DIMMs, replace the CPU board.
Memory Size Mismatch Error	The base or extended memory capacity configured is different than the capacity actually installed. Run the ROM Setup Utility and this error condition is automatically corrected.
Unable To Clear Parity/IOCC Error	Parity error during I/O access (depends on the previous error). Run the diagnostics, replace the motherboard.
Unable to Enter Protected Mode	Run the diagnostics, replace the CPU board.
REMOTE TERMINAL, SERIAL PORT PARALLEL PORT ERROR MESSAGES	
Remote Terminal Configuration Error	Invalid terminal type or COM port selection, or the COM port selected is disabled or not available, or there is no terminal connected to the COM port. Run the Configuration Utility.
Remote Terminal Hardware Error	The COM port selected does not work. Replace the motherboard.
Remote Terminal Installation Error	The remote terminal feature has been requested but there is no I/O device (monitor/keyboard, remote terminal via COM2 or remote terminal via COM1) available. Run the Configuration Utility.
Serial Portx Address Conflict Error	Address conflicts between the motherboard serial port and the COMx serial port on the expansion ISA board. Run the ECU.
Serial Portx Reg Read/Write Test Error	Hardware error on the COMx port. Run the diagnostics, replace the motherboard.
Serial Portx MODEM Loopback Test Error	Hardware error on the COMx port. Run the diagnostics, replace the motherboard.
Serial Portx FIFO Buffer Test Error	Hardware error on the COMx port. Run the diagnostics, replace the motherboard.
Serial Portx Interrupt Test Error	Hardware error on the COMx port. Run the diagnostics, replace the motherboard.
Serial Portx IRQ Config Error	IRQ configuration error on the COMx serial port. Run the Setup Utility.
Parallel Port Address Conflict Error	I/O address conflicts between the motherboard parallel port and another board installed on the ISA board. Run the ECU.
Parallel Port Compatible Mode Error	Hardware error on the parallel port. Run the diagnostics, replace the motherboard.
Parallel Port Extended Mode Error	Hardware error on the parallel port. Run the diagnostics, replace the motherboard.
Parallel Port IRQ Config Error	Reconfigure the parallel port.

ERROR MESSAGES	DESCRIPTION
PASSWORD ERROR MESSAGES	
Invalid Password	Enter the correct password; if it is not known, use jumper J16.
SYSTEM HALTED!	Message displayed after three incorrect password entries. If the password is not known, use jumper J16.
SYSTEM ERROR MESSAGES	
CPU Exception Error Has Occurred CPU Exception: xx POD Checkpoint: xxxx CPU Error Code: xx Physical Address: xxxx.xxxx	Reinitialize the system; replace the CPU board if the problem persists.
ACFG (Auto Config) Error	Error during internal autoconfiguration. Insufficient system memory or buffer allocation error. Run the ECU to manually solve this configuration conflict.
PnP Configuration Error	Error during internal autoconfiguration. Insufficient system memory or buffer allocation error. Run the ECU to manually solve this configuration conflict.
CMOS Clock/Calendar Error	The Real Time Clock cannot keep the correct date and time. Run the ROM Setup Utility. If the error persists, replace the RTC chip, then the motherboard.
CMOS Battery Lost Power	Discharged RTC CMOS RAM battery condition detected. Replace the motherboard and run the ECU.
CMOS Checksum Error	An error has been found during a check on the consistency of the data in CMOS RAM. Run the ECU, run the diagnostics, replace the motherboard.
CMOS Video Shadow RAM Config Error	Video shadowing configuration error in EEPROM. Run the Setup Utility.
Option ROM at xxxx:0000 Error	Option ROM error. Incorrect optional board configuration, run the ECU.
Configuration Bypass Jumper Installed	Jumper J16 is inserted.
Timer Ratio Test Error	The CPU Timer Ratio test has failed. Run the diagnostics, replace the CPU board.
Fail-Safe Timer Error	The EISA timer test has failed. Run the diagnostics, replace the motherboard.
Hardware Error(s) Detected... Run Diagnostics Program	A hardware error has been detected in the system. Run the diagnostics.
Press Enter Key to Continue	A non-fatal error has been detected. The system can continue to work by pressing the Enter key. Run the ECU.
Configuration Error(s) Detected... Run System Configuration Program	A configuration error has been detected. Run the ECU.
xxxxh Segment Shadow RAM Disabled/Error	An error has been detected during option ROM shadowing in segment xxxxh. Incorrect optional board configuration, run the ECU.
C-BUS II - INTER PROCESSOR INTERRUPTS ERROR MESSAGES	
C-Bus II Interrupt Register Test Error	CBC error. Replace the CPU board.
C-Bus II Interrupt Selftest Error	CBC error. Replace the motherboard or the CPU board.
C-Bus II All-In-Group Interrupt Error	CBC error. Replace the motherboard or the CPU board.
C-Bus II Lowest-In-Group Interrupt Error	CBC error. Replace the motherboard or the CPU board.
C-Bus II Hardware In Map Reg Test Error	CBC error. Replace the motherboard or the CPU board.
C-Bus II IRQ0 Interrupt Test Error	CBC error. Replace the motherboard, bridge, or the CPU board.
C-Bus II IRQ8 Interrupt Test Error	CBC error. Replace the motherboard, bridge, or the CPU board.

ERROR MESSAGES	DESCRIPTION
DAGGER AND LANCE PCI SCSI CONTROLLER ERROR MESSAGES	
BIOS Not Installed	There are no BIOS-supported SCSI devices connected to the controller.
Host Adapter Configuration Error	SCSI controller configuration error. Run the ECU or the ROM Setup Utility.
Can't Locate Host Adapter	The Adaptec BIOS is unable to communicate with the SCSI board. Replace the SCSI controller.
Device Connected, but Not Ready	The SCSI device has failed the Test Unit Ready command during initialization. Check the connections and run the test on the device.
Start Unit Request Failed	The SCSI device has failed the Start Unit command during initialization. Check the connections and run the test on the device.
Time-out Failure During SCSI Inquiry Command!	The SCSI controller did not issue the interrupt when the Inquiry SCSI command is sent during initialization. Replace the SCSI controller.
Time-out Failure During SCSI Test Unit Ready Command	The SCSI controller did not issue the interrupt when the SCSI Inquiry command was sent during initialization. Replace the SCSI controller.
Time-out Failure During SCSI Start Unit Command	The SCSI controller did not issue the interrupt when the SCSI Test Unit command was sent during initialization. Replace the SCSI controller.
Invalid Hard Disk CMOS Config Error	
VIDEO ERROR MESSAGES	
Video Configuration Error	Configuration error. Run the ROM Setup to change the video configuration.
Video Option ROM Checksum Error	Run the BIOS Flash again or replace the CPU or motherboard.
WARNING MESSAGES	
WARNING: Motherboard High Temp Status	If the operating system supports system shutdown, the system will shut itself down and power off; power off the system if other operating systems (DOS) are used.
WARNING: Disk Area High Temp Status	If the operating system supports system shutdown, the system will shut itself down and power off; power off the system if other operating systems (DOS) are used.
WARNING: Single Fan Failure Status	A single fan no longer works. If the system is not redundant, the operating system will shut down and power off the system, otherwise manually power off the system. If the system is redundant, the operations can continue normally but the fan needs to be replaced.
WARNING: Double Fan Failure Status	Two fans no longer work. If the system is not redundant, the operating system will shut down and power off the system, otherwise manually power off the system. If the system is redundant, the operations can continue normally but the fan needs to be replaced.
WARNING: Power Supply Failure Status	The system has two fans, only one of which does not work. Replace the failed power supply.
MICROPROCESSOR RUN-TIME ERROR MESSAGES (AFTER THE POD)	
ERROR - CPU Machine Check Condition Occurred	An internal CPU failure has occurred. The specific cause and address are indicated in one of the following messages. If the failure is fatal, the message will be preceded by the word LOCKED.
Interrupt Acknowledge Cycle at Address: xxxxxxxh	Replace the CPU board.
Special Cycle at Address: xxxxxxxh	Replace the CPU board.
I/O Read Cycle at Address: xxxxxxxh	Replace the CPU board.
I/O Write Cycle at Address: xxxxxxxh	Replace the CPU board.

ERROR MESSAGES	DESCRIPTION
Code Read Cycle at Address: xxxxxxxxh	Replace the CPU board.
Unknown Cycle at Address: xxxxxxxxh	Replace the CPU board.
Memory Read Cycle at Address: xxxxxxxxh	Replace the CPU board.
Memory Write Cycle at Address: xxxxxxxxh	Replace the CPU board.
FATAL ERROR, System is Halted	Last message displayed after the indication of the address and of the type of CPU cycle. Indicates an unrecoverable error.
NMI RUN-TIME ERROR MESSAGES (AFTER THE POD)	
NMI Error - EISA DMA Bus Timeout in Slot: x	EISA bus timeout error for the board installed in slot x. Replace the board, then the motherboard.
NMI Error - EISA System Software Generated NMI	The EISA subsystem software has generated an NMI. Replace the CPU board, then the motherboard.
NMI Error - EISA Fail-Safe Timer Timeout	EISA fail-safe timer timeout error. Replace the motherboard.
NMI Interrupt - PCI Transmitted Data Parity Error	A parity error has been detected during the data transmission of a PCI board. Replace the board, then the motherboard.
NMI Interrupt - PCI Received Data Parity Error	A parity error has been detected during the data reception of a PCI board. Replace the board, then the motherboard.
NMI Interrupt - PCI Address Parity Error	A parity error has been detected on the address bus of a PCI board. Replace the board, then the motherboard.
NMI Interrupt - PCI Target Abort Error	An error has been detected in the PCI bus target-abort cycle. Replace the PCI board, then the motherboard.
NMI Interrupt - Unknown PCI System Error	An unidentified PCI error has been detected. Replace the PCI board, then the motherboard.
NMI Error - I/O Channel Check in Slot: xx	An error has been detected during the check made on the I/O channel of the board installed in slot x. Replace the board, then the motherboard.
NMI Error - System Memory Parity Fault	A parity error has been detected in system memory. Replace the DIMMs, then the CPU board.
NMI Scanning Base/Extended Memory for Errors	I/O channel control and parity error condition displayed before the BIOS scanned system memory to reproduce the error condition. Replace the SIMMs, then the CPU board.
Address Where Error Occurred = xxxxxxxh in System Memory Bank: x	If the error has been reproduced, the BIOS will display the 32-bit address and the number identifying the memory bank (0-3). Replace the SIMMs on the bank identified, then the CPU board.
Unable to Locate Parity/IOCC Error	The NMI error cannot be located.
Unable to Clear the Error Condition	The system is unable to clear the error condition.
System is Halted - Please Reset	Last message displayed after one of the above messages.

Note: All the remote terminal error messages are displayed on the monitor or on the terminal after the message "Press Enter to Continue" so that the user can attempt to solve the problem. If the system is configured as "Remote Terminal" or "None" and the monitor and keyboard are not connected, no error message will be displayed.

Note: The error messages relating to the RAID DPT SCSI controller are listed in Appendix C under the section dealing with this specific controller.

SYSTEM CONFIGURATION UTILITIES

The system configuration utilities consist of two or four programs depending on whether the system is equipped with the RAID SCSI controller or not. The first program, called Built-In ROM Setup, resides in the system BIOS EPROM and can therefore be activated directly from the keyboard. The second and third programs called EISA Configuration Utility (ECU 3.x) and Storage Manager, respectively, are provided in the Starter Kit. The fourth program, called DPT Configuration Utility, resides in the firmware of the RAID GO2061 controller and can therefore be activated directly from the keyboard. The Built-IN ROM Setup program is described in Appendix E, the Storage Manager in Appendix F, while general information on the diskettes contained in the Starter Kit as far as software configuration is concerned is provided below.

DISKETTES PROVIDED IN THE STARTER KIT

There are a total of 11, 3.5" 1.44 MB diskettes available for systems that are not equipped with the RAID DPT SCSI controller. These diskettes are divided as follows: 4 User Disks, 3 additional driver diskettes for the SCO and NT operating systems, 2 Video Drivers, 2 SCSI Drivers for the Dagger board. The same 11 User Disks are also used on systems equipped with the RAID DPT SCSI controller with the only exception of an additional four 3.5" 1.44 MB diskettes, two of which containing the Storage Manager utility and drivers for the supported operating systems and two for temperature sensor control.

- **User Disk - System Configuration.** Contains the EISA Configuration Utility Release 3.x. In addition to supporting EISA and ISA boards, from ECU release 3.0 support is also provided for PCI and ISA Plug & Play boards. This diskette is available in English only:
 - Automatically configures EISA boards, provides information on the configuration of ISA boards and displays the configuration of Plug & Play PCI and ISA boards through the EISA Configuration Utility.
 - Supports the Utilities diskette which is requested whenever the utilities are selected from the main menu.
 - Supports the ISA Configuration File Library disk which provides the jumper settings of the more renown optional ISA boards.
 - Supports system Setup and personalization.
 - Supports the diagnostics disk in the appropriate language.
- **User Disk - Utilities.** Contains all the programs listed in the main menu under the item Utilities. Can also be directly activated with UD.EXE.
- **User Disk - Diagnostics.** The Diagnostics disk gives the choice between five languages. It runs a set of low level tests on the hardware modules installed in the system. It is suggested that the Service Engineer use the System Test disk so that more complete tests can be run.
- **User Disk - ISA Configuration (CFG) File Library.** Includes the *.CFG files for the different ISA expansion board that can be added to the system. Since this disk only contains /US directories and .CFG data files, it can be used in any language.
- **Storage Manager.** This utility is only available for system equipped with the RAID SCSI controller. It checks the hardware configuration of the RAID controller and of all connected devices, configures the disk arrays and runs SCSI subsystem diagnostics.
- **H.A.L. Setup.** This diskette allows Windows NT to manage multiprocessor systems and must therefore not be used on single-processor systems.

- **Corollary EFS SCO UNIX and Corollary SLS SCO UNIX.** Two diskettes containing the additional drivers for SCO UNIX operation.
- **PCI to SCSI Device Drivers.** Two diskettes containing the SCSI drivers for the Dagger and Lance controllers.
- **EVD Drivers.** Two diskettes containing the EVD drivers.
- **Resilience Support Drivers.** Available only for systems equipped with a RAID SCSI controller, these drivers manage high temperature indications. Thermal sensors on the swap board detect the temperature in the board and disk areas and signal any faults through the SYS FAULT LED on the console. In case of high temperatures in the board or disk area, the drivers will act as follows:
 - Issue overtemperature messages to the user
 - Store this faulty condition in an error log file
 - Shut down the system automatically.

If the system is also equipped with an external UPS and has the PowerChute Plus 4.2 software (or later releases) installed, in addition to being shutdown the system is also powered off as a safeguard against hardware damage. Resilience Support drivers are available for the following operating systems:

- Microsoft Windows NT version 3.x
- Novell NetWare version 3.1x and 4.xx
- UnixWare Application Server 2.0.1
- SCO Unix 3.2 version 4.2
- SCO Open Server Enterprise System 3.0.0.

Note: *The Olivetti UNIX SVR4.0 ver. 2.4.1 operating system already integrates thermal sensors.*

Note: *From June 1996 the Resilience Support disks are no longer included in the Starter Kit since they will be provided together with Server View from release 2.01.*

CONFIGURATION OF OPTIONAL BOARDS

Any system device requires the availability of resources to use in order to work and communicate with other devices. Basically there is the need to define which interrupts, memory addresses and DMA channels must be assigned to this device. The term device refers to a component integrated on the motherboard, the motherboard installed on the bus and the different peripherals connected to the system. System configuration means assigning these resources without generating conflicts between the different devices.

This product line uses the Plug and Play (PnP) technology that, along with the system BIOS, allows the automatic configuration of PCI and Plug and Play ISA AT boards according to the resources available. Furthermore, thanks to the ECU, this technology allows the automatic configuration of EISA boards and also provides configuration information for earlier ISA AT boards that are configured by means of jumpers or DIP-switches so that conflicts with other system devices are avoided.

CONFIGURATION OF PCI AND ISA AT PLUG AND PLAY BOARDS

These boards are implemented with specific hardware through which they can communicate with the system. By means of this hardware, the boards can inform the system of the resources they need and of possible alternatives.

The system BIOS implements a code which is capable of supporting this technology. Each time the system is activated, during the POD this code controls all the expansion boards and devices installed, detects the resources that are available in NVRAM and automatically assigns these resources in the best possible way. In case of unresolvable conflicts during the division of these resources, the BIOS is capable of relinquishing the control over to the EISA Configuration Utility (ECU). The utility will require operator intervention who at this point will decide how to solve the conflicts.

During the POD configuration phase all the resources that can be automatically modified by the BIOS are considered as available. Therefore by installing a new board it may be possible that the resources assigned to PCI and ISA PnP boards previously installed in the system are changed.

At the end of installation it is possible to activate the Built-in ROM Setup or EISA Configuration Utility which, along with the Configuration Manager, displays the resources that have been automatically assigned by the BIOS. Some of these resources can also be modified by using the utility, and any changes made are only accepted if they do not generate conflicts with other devices. If they do, the previous BIOS values are restored the next time the system is powered on.

Even when a PCI or ISA PnP board is removed, this board needs to be physically removed from the bus and the system rebooted so that it is automatically cleared from the configuration.

Note: *Even though being a PCI board, the Dagger SCSI controller has some parameters (for example termination or ID) that need to be defined or checked with the defaults by means of the ROM Setup Utility or, preferably, by means of the ECU. In this way also the RAID PCI SCSI controller must be configured by means of the configuration utility resident in the board's own firmware.*

CONFIGURATION OF EISA AND ISA BOARDS

The EISA Configuration Utility (ECU) allows the automatic configuration of EISA boards and guides the user in the configuration of non-Plug and Play ISA AT boards.

Each optional EISA or ISA board comes with a diskette containing a file (.CFG extension) with information on the resources needed for the configuration of the board and on the alternative values. The ECU is capable of reading this information and of assigning automatically, in the case of EISA boards, or suggesting, in the case of ISA boards, the resources for the determined board without generating any conflict. If there are jumpers or DIP-Switches on the board (usually EISA boards do not have any), the ECU is capable of indicating any setting according to how the resources have been assigned.

The system configuration utility has a database with the configuration data of the more common EISA and ISA AT boards. Before physically installing a board, its related .CFG file needs to be added to the database if it is not already present.

During the ECU configuration phase, all the resources that can be modified automatically are considered as being available. Therefore by installing a new board it may be possible that the resources assigned to boards previously installed in the system are changed. In the case of ISA boards with jumpers or DIP-Switches, a check must be made to see whether the settings are still valid or not. To avoid this inconvenience, by means of a specific command, block all the configuration parameters of the boards that must be configured manually through jumpers or DIP-Switches, or block all the configuration parameters assigned. The configuration needs to be unblocked during the solving of any conflict between resources.

At the end of the configuration process all data are stored in the motherboard EEPROM so that the system resources are checked each time the system is bootstrapped. The data are also stored in the System Configuration Information file (SYSTEM.SCI) contained in the System Configuration diskette or in the Orchestra Systema Boot diskette. This file is automatically updated at each successive configuration.

Note: *All User Disk functions are self-explanatory and aided by an online Help facility which can be invoked by pressing the F1 key. The Utility can therefore be run correctly by simply following the instructions displayed.*

NOTES ON THE CONFIGURATION OF LINE BOARDS WITH AT INTERFACE

The Multiport and LAN/WAN boards with AT interface installed in this system can only be mapped in megabyte F since the memory map views the first megabyte as being entirely occupied by system memory and therefore there is no way of creating a 128 KB memory gap from 512 to 640 KB and a 96 KB gap from 800 to 896 KB.

The installation of EISA boards does not require, however, the opening of system memory spaces as they can be mapped beyond the maximum memory capacity that can be installed in the system.

The following table gives examples of the assignment of system resources.

TYPE OF BOARD	MAX No.	SLOT	IRQ	EX. OF DPM BASIC ADD.	BUFFER SIZE	CFG FILE	NOTES
Motherboard Keyboard Floppy disk COM1 COM2 LPT1 RTC PS/2 mouse	1	-	1 6 4 3 7 8 12				
CPU board Timer Coprocesor	1	CPU	0 13				
GO624 GO2124 GO2109	3	1-3	5, 10, 11, 15				The same IRQ can be shared among several boards
GO2061 GO2098	3	1-3	11, 14, 15				The same IRQ can be shared among several boards
Multiport EISA STALLION	4	3-7	3, 4, 5, 7, 10, 11, 12, 15,	in the F MB (16 th) in the 3 rd GB	64 KB	!STL0400	The same IRQ can be shared among several boards
NPU 9145 NPU 9147S AT Ethernet	4	3-7	3, 9	from C A000 to F 4000 F4 0000 (MB F) F8 0000	8 KB	!OLIF031 Ver. 1.03 !OLIF061 Ver. 1.03	The same IRQ cannot be shared among several boards
NCU 9141II NCU 9143/S AT Ethernet	4	3-7	9, 10, 12, 3, 5, 7, 15	F2 0000 (MB F) F4 0000 F6 0000 F8 0000	128 KB	!OLIF012 Ver. 1.01 !OLIF052 Ver. 1.01	The same IRQ cannot be shared among several boards
OC 2123 AT Ethernet	4	3-7	3, 4, 5, 7, 9, 10, 11, 15	from C 0000 to E C000	8 KB	!ISA1063 Ver. 1.01	The same IRQ cannot be shared among several boards
NCU 9180 NCU 9181S EISA Ethernet	4	3-7	9, 10, 11, 15	No DPM		!OLI1031 Ver. 1.04 !OLI1041 Ver. 1.02	The same IRQ can be shared among several boards
NCU 9172 AT Token Ring	4	3-7	9, 10, 11, 3	with RPL EPROM: from C 0000 to F E000 or Note	8 KB	!OLIF1C1 Ver. 1.00	The same IRQ can be shared among several boards

TYPE OF BOARD	MAX No.	SLOT	IRQ	EX. OF DPM BASIC ADD.	BUFFER SIZE	CFG FILE	NOTES
LPU 24	4	3-7	2, 3, 5, 10, 11, 12, 15	C 0000	16/32/64 KB	!OLIF221	The same IRQ can be shared among several boards (not IRQ 2)
LPU 2100				C 4000		Ver. 1.01	
LPU 2400				C 8000		!OLIF241	
LPU 3500				C C000		Ver. 1.01	
LPU 3600				D 0000		!OLIF231	
AT WAN				D 4000		Ver. 1.01	
	D 8000	!OLIF251					
	D C000	Ver 1.01					
	E 0000	!OLIF261					
	E 4000	Ver. 1.01					
	E 8000						
	E C000						

Note: If not equipped with an RPL EPROM, the AT Token Ring board can interface the system through DMA channels 5, 6, 7 or through the following I/O ports:

1st board: 0A20-0A23 & 0A30-0A3F

2nd board: 0A24-0A27 & 0A40-0A4F

3rd board: 0A50-0A53 & 0A60-0A6F

4th board: 0A54-0A57 & 0A70-0A7F

USER DISK EVOLUTION (SYSTEM CONFIGURATION + UTILITIES)

DATE	REL.	REASON FOR CHANGE
4/95	1.01 upd 2	<p>Introduction of the User Disk containing Configuration Utility Rel. 3.00.</p> <ul style="list-style-type: none"> - Eliminated the ECU restrictions present in release 2.07. Release 3.00 fully supports PCI and P&P so as to solve resource conflicts between these boards. - Last three configuration changes are stored in three files (System1.SCI, System2.SCI, System3.SCI). - Two 1.44 MB diskettes are required with the new ECU release: System Configuration and Utilities. Furthermore, the obsolete CFG and OVL files of EVC, ESC-1/ESC-2 and Arrow.
6/95	1.03 upd1	<p>Release made compatible for the SNX 200/400. Compatible levels are: Motherboard P2.1, Rev. F2 or later, CPU board P2.1 Rev. B or later, Bridge P3.0 Rev. D or later, memory board Rev. B or later, BIOS 1.04 or later.</p> <ul style="list-style-type: none"> - Updated Configuration Utility rel. 3.01 to solve some of the problems with release 3.00. - The Config.SYS file has been added to the System Configuration disk to prevent the system from hanging during the initial configuration when some PCI boards are installed. - Modifications made to the motherboard .CFG file. - Solved the problem with the system hanging when booting the system from the System Configuration or Utilities disk, in remote terminal mode when the disk is write protected. - Support for configurations with several Dagger controllers; the previous release supported only one controller. - Support for "Non-contiguous Memory" (possibility of creating spaces in system memory). This was not possible with release 1.01 up2. - More than one P&P board can be configured correctly. Before, the information relating to one board was duplicated for all the boards present. - PCI slots 4 to 7 are displayed. - The Video Blank option of the Security Utility is removed with network password disabled. - Corrected the storage and verification of the administrator and keyboard password in NVRAM, in addition to giving the possibility of also using special characters. - The Dispatcher Utility (UD.EXE) solves the problem relating to the limit on the number of files opened which blocked the loading of the utility. - Removed the possibility of selecting edge-triggered interrupts for the motherboard serial ports since these are not supported. - The status of the floppy disk controller (enabled or disabled) cannot be changed, it is automatically set at the POD and displayed using the Configuration Utility.
11/95	1.05	<p>Compatible levels are: Motherboard P2.1, Rev. F2 or later, CPU board P2.1 Rev. B or later, Bridge with discrete components P3.0 Rev. D or later, Bridge Asic P1.0 or later, memory board Rev. B or later, BIOS 1.08 or later.</p> <ul style="list-style-type: none"> - Support for the 133 MHz CPU - Addition of an option in the configuration of the Dagger SCSI controller to enable or disable the geometric translation for hard disks with a capacity greater than 1 GB - All PCI slots have been declared as being shared with the EISA slots, thus solving a configuration problem with the Dagger SCSI controller; previously this controller appeared as being a non-existent device. - Proper support for the initialization of the memory resources included between 8 and 16 MB. Previously this memory range was not declared as being a resource on systems with less than 64 MB.
11/96	1.06	<p>New configurator release to:</p> <ul style="list-style-type: none"> - Solve configuration failures. - Support the Lance controller <p>This User Disk release must be distributed on systems equipped with a BIOS release later than or equal to 1.22up2.</p>

USER DIAGNOSTICS EVOLUTION

DATE	REL.	REASON FOR CHANGE
4/95	1.01	Introduction of the Diagnostics Disk.
6/95	1.02	Release made compatible for the SNX 200 and SNX 400.
11/95	1.03	New release for the support of quad-speed CD-ROM drives.
11/96	1.05	New release for: - Incorrect management of HDU diagnostics with the DPT board on IRQ14. - CDR_DIA, STR_DIA, HDU_DIA, SPCI_DIA link with SCSI library rev. 0.32. - SPCI_DIA replaces DAG_DIA and also tests the Lance controller.

EVD DRIVERS EVOLUTION

DATE	REL.	REASON FOR CHANGE
04/95	1.00	Introduction of the video driver for DOS and Windows. The disks are: - SNX 200/RS (Cirrus 5422) EVD disk 1/2 code 2690993 S - SNX 200/RS (Cirrus 5422) EVD disk 2/2 code 2690994 P.
11/96	2.0	New video drivers to support the Cirrus 5429. The new disks are: - EVD Disk 1/2 code 2692156 X - EVD Disk 2/2 code 2692155 K.

SCSI DRIVERS EVOLUTION

DATE	REL.	REASON FOR CHANGE
04/95	1.0	Introduction of the SCSI driver for the Dagger board. The disks are: - SNX 200/RS - PCI to SCSI Device Drivers Disk 1/2 code 2690998 Q - SNX 200/RS - PCI to SCSI Device Drivers Disk 2/2 code 2690999 L.
06/95	1.1	The disks are: - SNX xxx/RS - SCSI Drivers EZ SCSI - NetWare - OS/2 Disk # 1 code 2691025 K - SNX xxx/RS - SCSI Drivers UnixWare 2.0x - SCO Diskette #2 code 2691026 X
11/96	1.30	New SCSI drivers to support the SCC PCI 114W (GO2109) board. These disks are: - SCSI drivers 1/2 code 2692158 Q - SCSI drivers 2/2 code 2692157 T - EZ-SCSI drivers release 4.00 code 2692159 L.

RESILIENCE SUPPORT DRIVER EVOLUTION

DATE	REL.	REASON FOR CHANGE
06/95	2.0	Introduction of the Resilience Support. The following disks are available: - SNX 2xx/RS Resilience Support disk 1/2 code 2691064 K - SNX 2xx/RS Resilience Support disk 2/2 code 2691065 P
11/95	2.1	New release for Server View 1.1 support. The following disks are available: - SNX 2xx/RS Resilience Support disk 1/2 code 2691249 H - SNX 2xx/RS Resilience Support disk 2/2 code 2691250 F.

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SERVER VIEW EVOLUTION

DATE	REL.	REASON FOR CHANGE
10/95	1.0	Introduction of the Server View software. Server View Starter Kit code 2754560 H.
11/95	1.1	New release that solves some of the problems with release 1.0, SCO Open Server 5.0 and UnixWare support. Server View Starter kit code 2757950 D-01.
5/96	2.01	New Server View release which also contains the Resilience Support drivers that are no longer available on the disks provided with the Starter Kit. The new Server View release has code 211996 L and is distributed on CD-ROM.

SYSTEM TEST EVOLUTION

DATE	REL.	REASON FOR CHANGE	CODE
4/95	1.01	Introduction of the System Test.	H06193
11/95	1.04	New System Test release.	H06271
11/96	1.06	New System Test release for: - CDR_DIA, STR_DIA, HDU_DIA, SPCI_DIA link with SCSI library rev. 0.32. - SPCI_DIA replaces DAG_DIA and also tests the Lance controller.	

REDUNDANCY

A system is considered as being redundant when it is equipped with a RAID SCSI controller for HDU management, two power supplies and two fan units; redundancy is managed by the Swap board.

The motherboard is equipped with the following error detection measures:

- 1 Temperature sensor on the motherboard itself
- 2 Temperature sensor on the swap board detecting the temperature in the disk area
- 3 Redundancy failure indication when a fan no longer works
- 4 Redundancy failure indication when a power supply no longer works.

These error conditions are reported on a specific I/O port on the motherboard. Failures 1-2-4 cause the system to shutdown and power off, in which case the type of failure is stored in a file in the operating system. System failures of this kind are signalled by the SYS FAULT LED on the control panel.

The redundancy kit contains: one PS45 power supply, three slow-type fans (one fan if the kit is intended for a PEM), the power supply parallelism board (IF2025/35 for RS systems, IF2034 for RM systems), one motherboard-power supply parallelism board connection cable, one current share cable and one power cord.

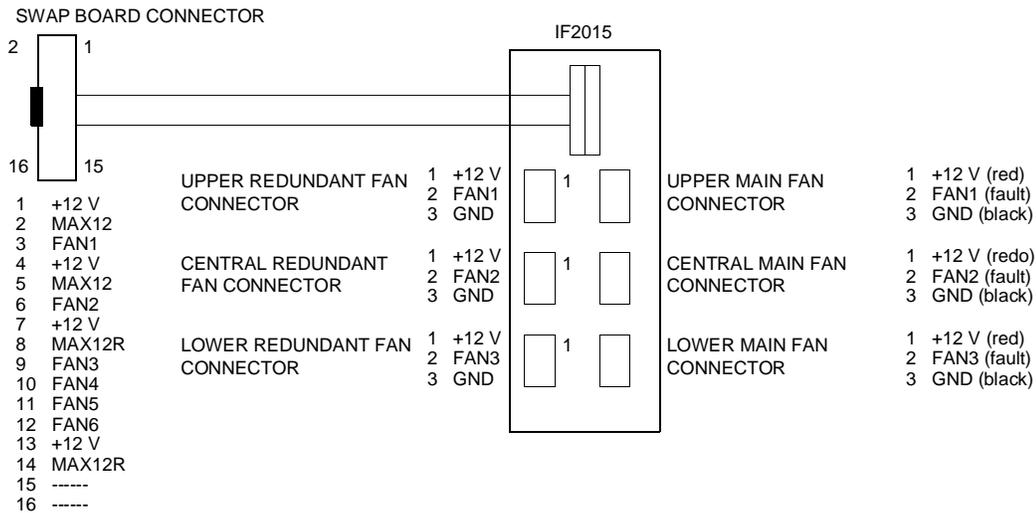
FANS

First series SNX 200/RS models are equipped with NMB 4715KL-04W-B29 fans (fast type), while the slow type B19 fans are used on all other models. The B29 fans are used with Swap board IF2012 at Nasc. Lev. where the main fans are operating and only when one of these fail are all three redundant fans activated. The system models equipped with the fast type B29 fans are all redundant (equipped with six fans) and have their three main fans located towards the front of the system.

B19 fans are used with swap board IF2012 Lev. 01 or IF2031. The main and redundant fans are always functional; when any one of these fans no longer works, the operator is informed of this error condition so that the faulty fan can be replaced. The faulty fan must only be replaced with one of the same kind (B19). The three main fans are located towards the rear of the system (board side) while the redundant fans are located towards the front. The redundancy kit only contains slow type fans (three B19 fans) which flank the main fans.

The redundant and main fans are connected through the IF2015 fan power distribution board.

From March 1996 the B19 fan assembly (code 589375G) is replaced by fans NMB 4715KL-04W-26 called B26 (code 564151 W). Fans B26 are equipped with an internal temperature sensor so that they turn slowly at normal environmental temperatures, increasing their speed of rotation as the temperature increases. These fans are compatible with Swap Board IF2012 Lev. 03S1 or IF2031 Lev. 02 and later updates. The main and redundant fans operate in the same way as the B19 fans.



3

BOARD IF2015 (P.c.b. Code 654297 B) EVOLUTION

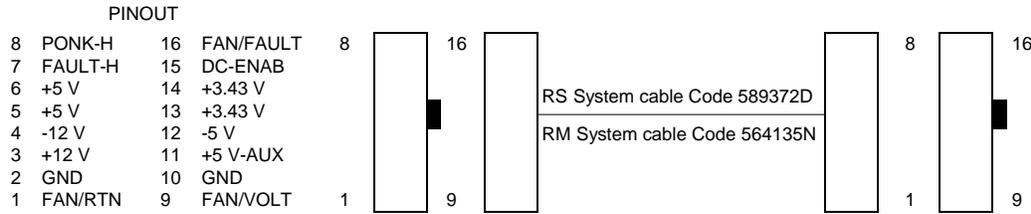
DATE	LEV.	VIMO CODE	REASON FOR CHANGE	APPLIC.
4/95	Nasc	562145 W	The board is introduced.	Factory

POWER SUPPLIES

This system is equipped with the PS45 power supply with which it can also be used in redundant configurations where the main power supply is connected to another PS45. In redundant configurations, both power supplies work at about 50% of their full potential but when one of these fails, the other will automatically cover the activities of the one no longer in use. Both power supplies are simultaneously powered on through the ON/OFF switch which changes the status of the signal that enables power supply operation. The main and redundant power supplies must be connected using the current share cable so that they both work at about 50 % of their full potential when both are installed.

The IF2025 power supply parallelism board is required for the connection of the two power supplies. This board parallels the output voltages from the power supply and distributes these to the motherboard and swap board. This board has four red LEDs through which it is possible to keep under control and verify the operation of the entire power supply assembly.

INDICATION	LED	LED STATUS
Normal operation: the FAULT LED is off indicating that both power supplies are working correctly.	+5 V FAULT POK2 POK1	ON OFF ON ON
The FAULT LED is on to indicate the failure of one of the two power supplies. The POK1 LED is off indicating the failure of the first power supply in which case the second power supply is still working correctly.	+5 V FAULT POK2 POK1	ON ON ON OFF
The FAULT LED is on to indicate the failure of one of the two power supplies. The POK2 LED is off indicating the failure of the second power supply in which case the first power supply is still working correctly.	+5 V FAULT POK2 POK1	ON ON OFF ON

Motherboard-IF2025 Power Supply Parallelism Board Connection Cable**BOARD IF2025 (P.c.b. Code 654343 Q) EVOLUTION**

DATE	LEV.	VIMO CODE	REASON FOR CHANGE	APPLIC.
4/95	Nasc	562251 G	The board is introduced.	Factory
5/95	01		Made compatible with the PEM: the +5 aux signal is added (through a wiring on side B) to pin 11 of connector P3P.	Factory

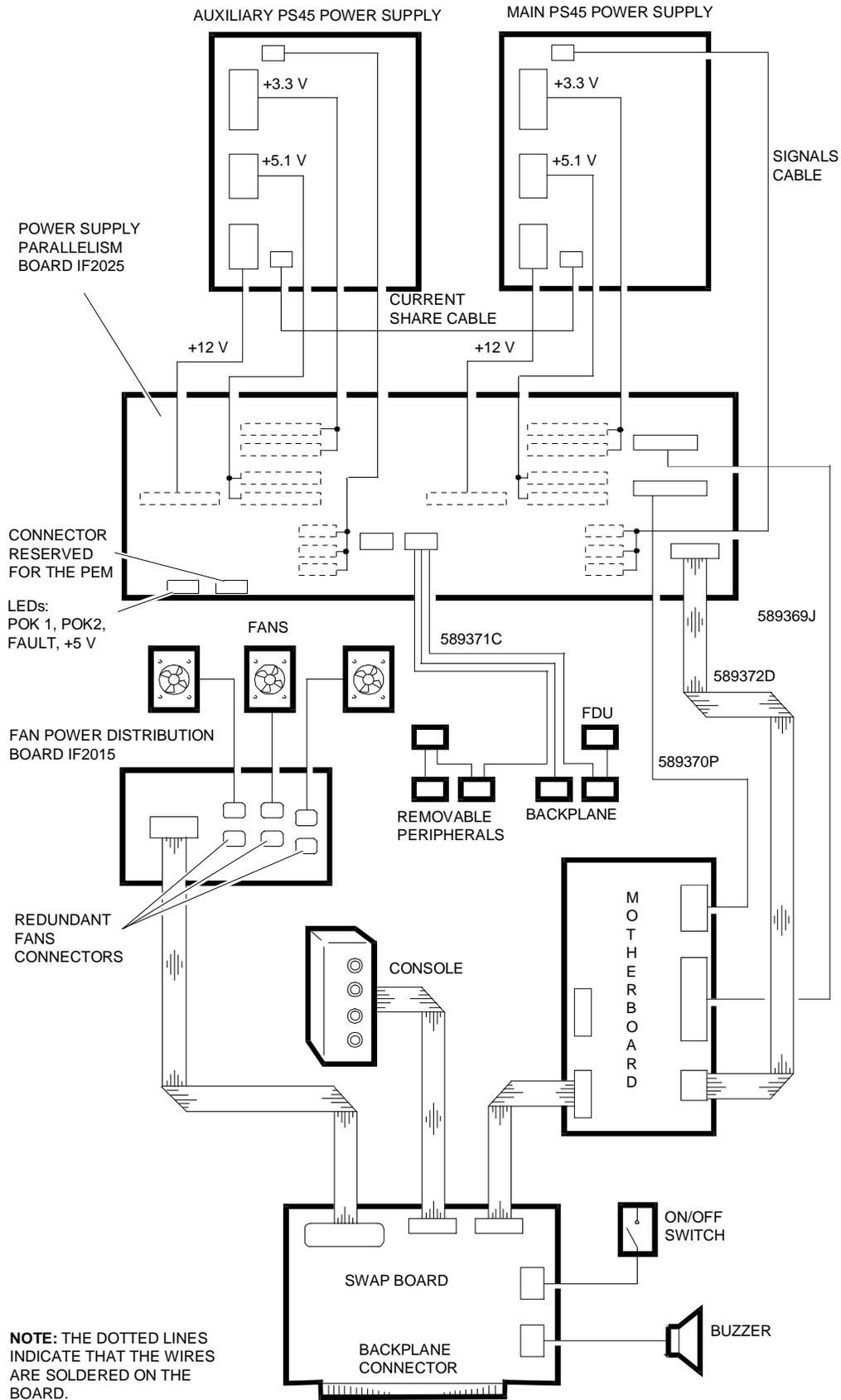
BOARD IF2035 (P.c.b. Code 654394 C) EVOLUTION

DATE	LEV.	VIMO CODE	REASON FOR CHANGE	APPLIC.
3/95	Nasc	562408 F	The board is introduced to replace the IF2025, recovering the wirings made.	Factory

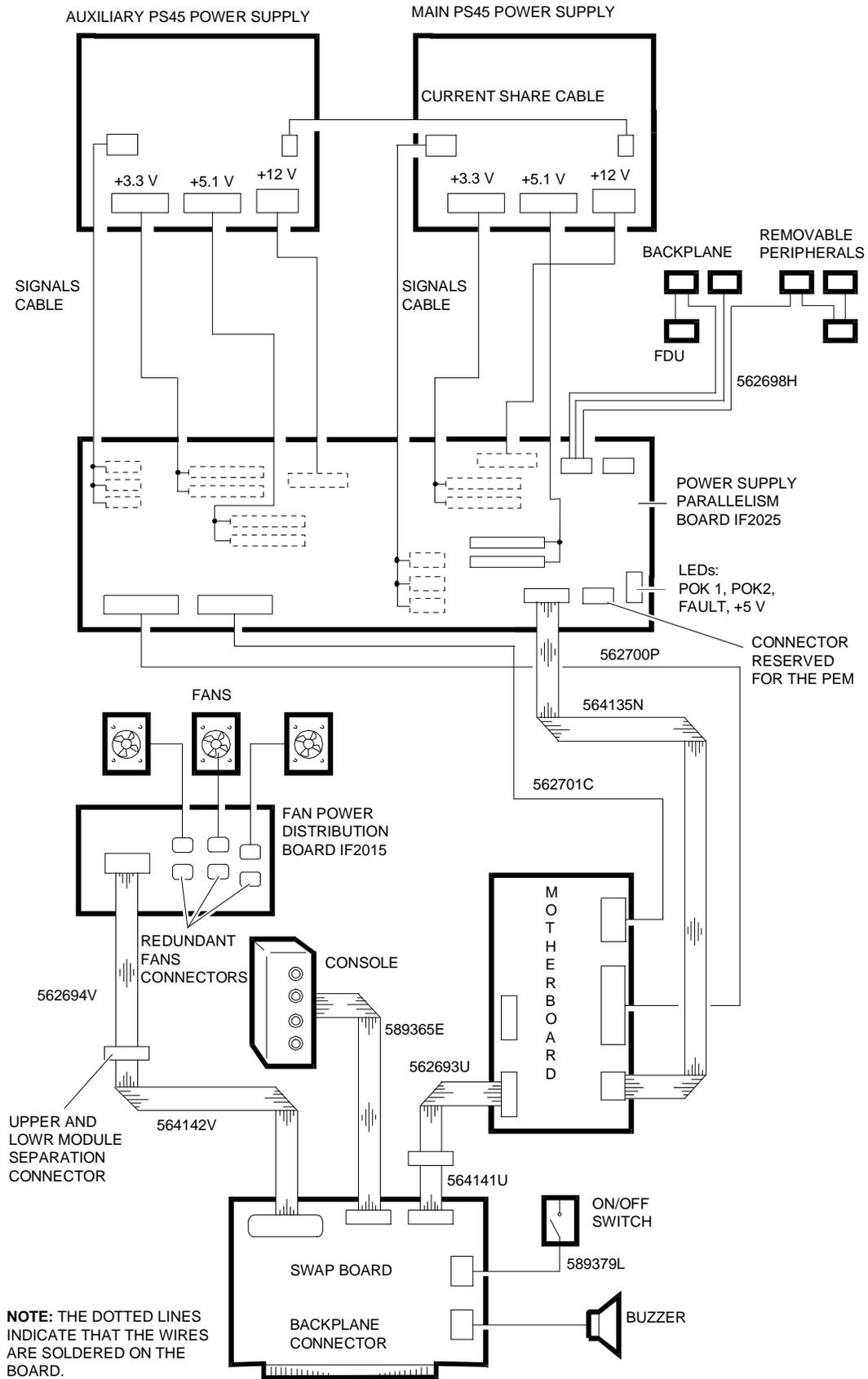
BOARD IF2034 (P.c.b. Code xxxxxxx) EVOLUTION

DATE	LEV.	VIMO CODE	REASON FOR CHANGE	APPLIC.
7/95	Nasc	562407 W	Introduction of the board for PEM RM systems.	Factory

ELECTRICAL CONNECTIONS ON REDUNDANT RS SYSTEMS

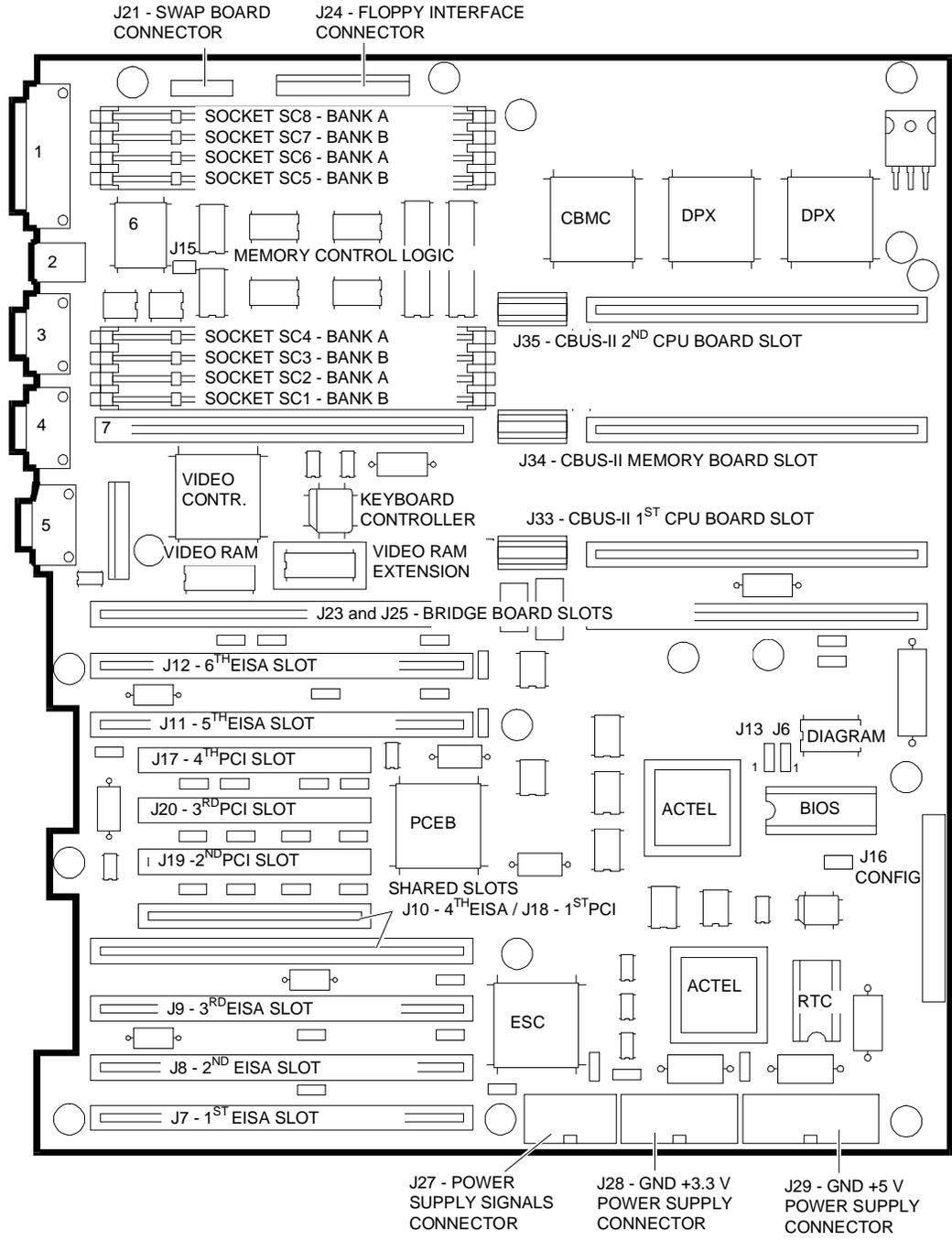


ELECTRICAL CONNECTIONS ON REDUNDANT RM SYSTEMS



MOTHERBOARD BA2179 / 2193 / 2241 (FOR THE SNX 200)

3



- 1 Parallel interface connector
- 2 Keyboard connector (above), mouse connector (under)
- 3 Serial interface connector (COM1)
- 4 Serial interface connector (COM2)
- 5 VGA video interface connector
- 6 Floppy disk controller, serial and parallel interfaces
- 7 Connector J36 - not used

JUMPERS

JUMPER J16 CONFIG	DESCRIPTION
ON	The system is set as defined by the default configuration. The configuration stored in CMOS RAM is ignored, therefore including all security features.
OFF *	Normal setting, at power on the system is set as defined by the configuration stored in CMOS RAM.

JUMPER J13 FLASH_VPP	DESCRIPTION
PINs 1-2 ON *	Normal operation. VPP (+12 V) voltage is applied to the BIOS Flash EPROM. The setting of jumper J6 FLASH_WR defines whether the system EPROM is write protected or not, under software control.
PINs 2-3 ON	Diagnostic setting. VPP voltage is pulled-up to +5 V and Flash EPROM programming is blocked.

JUMPER J6 FLASH_WR	DESCRIPTION
PINs 1-2 ON *	Normal operation. The Flash EPROM write signal is under software control. The setting of jumper J13 FLASH_VPP defines whether the System EPROM is write protected or not.
PINs 2-3 ON	Diagnostic setting. The Flash EPROM write signal pulled-up to 5 V and Flash EPROM programming is blocked.

JUMPER J15	DESCRIPTION
OFF	This jumper is reserved for future diskette drive expansions using 2.88 MB drives. Must always be set to OFF.

MEMORY EXPANSION

The motherboard for SNX 200 systems has eight ECC DIMM (Dual In-Line Memory Modules) sockets divided into two banks. These sockets represent part of the total memory that this system can use; the other part is optional and is provided by memory board ME2037.

Listed below are the rules to follow when configuring memory on this system:

- The system sees onboard memory as being divided into two banks (A and B). Each bank consists of four sockets. Bank A has sockets SC2, SC4, SC6, SC8 while Bank B has sockets SC1, SC3, SC5, SC7.
- Four DIMMs must be installed at a time in order to fill a memory bank. The DIMMs in the same bank must all be of the same capacity.
- Although not in the same bank, the system can be configured with DIMMs of different capacities as long as higher capacity DIMMs are installed in Bank A with respect to Bank B.
- The banks must be filled in order starting from Bank A. In the minimum system memory capacity, Bank A is totally filled while Bank B is empty.
- Memory board ME2037 can only be installed if both onboard memory banks A and B are filled with DIMMs of the same capacity:
eight 1M72 DIMMs = 64 MB or eight 4M72 DIMMs = 256 MB.
- The minimum memory configuration is 32 MB expandible to 256 MB.

- There are no jumper settings to be made on the board to configure system memory; any memory expansion DIMMs added are automatically recognized by activating the ECU or the BIOS Setup Utility.

The following ECC DIMMs can be used:

PDG NAME	CAPACITY	MEMORY EXPANSION KIT
EXM 32/60D	32 MB	Four 1 MBit x 72 bit, 60 ns (8 MB x 4) DIMMs. The kit fills one bank.
EXM 128/60D	128 MB	Four 4 MBit x 72 bit, 60 ns (32 MB x 4) DIMMs. The kit fills one bank.

3

The table below shows possible on-board memory configurations.

TOTAL MEMORY	SOCKETS IN BANK A				SOCKETS IN BANK B			
	SC2	SC4	SC6	SC8	SC1	SC3	SC5	SC7
32 MB	8 MB	8 MB	8 MB	8 MB				
64 MB	8 MB	8 MB	8 MB	8 MB	8 MB	8 MB	8 MB	8 MB
128 MB	32 MB	32 MB	32 MB	32 MB				
160 MB	32 MB	32 MB	32 MB	32 MB	8 MB	8 MB	8 MB	8 MB
256 MB	32 MB	32 MB	32 MB	32 MB	32 MB	32 MB	32 MB	32 MB

VIDEO RAM

The motherboard has a 512 KB video RAM expandible to 1 MB using a chip provided in kit VGA-MEM/02. The following table lists all the video modes that the controller can support. The modes marked with an asterisk (*) require a 1 MB video RAM. The installation of video RAM expansion chips does not require that jumper settings be made since the BIOS will automatically detect the video RAM capacity installed.

Mode	Type	Resolution (Pixels)	Colors	Char. Format	Page Format	Pixel Clock	Vertical Refresh
00/01 (CGA)	A/N	320 x 200	16 among 256 K	8 x 8	40 x 25	25.2 MHz	70 Hz
00/01 (EGA)	A/N	320 x 350	16 among 256 K	8 x 14	40 x 25		
00/01	A/N	320 x 400	16 among 256 K	9 x 16	40 x 25	28.3 MHz	
02/03 (CGA)	A/N	640 x 200	16 among 256 K	8 x 8	80 x 25	25.2 MHz	
02/03 (EGA)	A/N	640 x 350	16 among 256 K	8 x 14	80 x 25		
02/03	A/N	720 x 400	16 among 256 K	9 x 16	80 x 25	28.3 MHz	
04/05	APA	320 x 200	4 among 256 K	8 x 8	40 x 25	25.2 MHz	
06	APA	640 x 200	2 among 256 K	8 x 8	80 x 25		
07 (EGA)	A/N	720 x 350	monochrome	8 x 8	40 x 25	28.3 MHz	
07	A/N	720 x 400	monochrome	9 x 16	80 x 25	25.2 MHz	
OD	APA	320 x 200	16 among 256 K	8 x 8	40 x 25		
OE	APA	640 x 200	16 among 256 K	8 x 8	80 x 25		
OF	APA	640 x 350	monochrome	8 x 14	80 x 25		
10	APA	640 x 350	16 among 256 K	8 x 14	80 x 25		
11	APA	640 x 480	2 among 256 K	8 x 16	80 x 25		
12	APA	640 x 480	16 among 256 K	8 x 16	80 x 25		
13	APA	320 x 200	256 among 256 K	8 x 8	40 x 25		
14	A/N	1056 x 400	16 among 256 K	8 x 16	132 x 25		41.5 MHz
54	A/N	1056 x 400	16 among 256 K	8 x 16	132 x 25		
55	A/N	1056 x 350	16 among 256 K	8 x 14	132 x 25	70 Hz	
58,6A	APA	800 x 600	16 among 256 K	8 x 16	100 x 37		36 MHz
58,6A	APA	800 x 600	16 among 256 K	8 x 16	100 x 37	40 MHz	60 Hz
58,6A	APA	800 x 600	16 among 256 K	8 x 16	100 x 37	50 MHz	72 Hz
5C	APA	800 x 600	256 among 256 K	8 x 16	100 x 37	36 MHz	56 Hz

Mode	Type	Resolution (Pixels)	Colors	Char. Format	Page Format	Pixel Clock	Vertical Refresh
5C	APA	800 x 600	256 among 256 K	8 x 16	100 x 37	40 MHz	60 Hz
5C	APA	800 x 600	256 among 256 K	8 x 16	100 x 37	50 MHz	72 Hz
5Di	APA	1024 x 768	16 among 256 K	8 x 16	128 x 48	44,9 MHz	87i Hz
5D	APA	1024 x 768	16 among 256 K	8 x 16	128 x 48	65 MHz	60 Hz
5D	APA	1024 x 768	16 among 256 K	8 x 16	128 x 48	75 MHz	70 Hz
5D	APA	1024 x 768	16 among 256 K	8 x 16	128 x 48	77 MHz	72 Hz
5F	APA	640 x 480	256 among 256 K	8 x 16	80 x 30	25 MHz	60 Hz
5F	APA	640 x 480	256 among 256 K	8 x 16	80 x 30	31.5 MHz	72 Hz
60i *	APA	1024 x 768	256 amon 256 K	8 x 16	128 x 48	44.9 MHz	87i Hz
60 *	APA	1024 x 768	256 among 256 K	8 x 16	128 x 48	65 MHz	60 Hz
60 *	APA	1024 x 768	256 among 256 K	8 x 16	128 x 48	75 MHz	70 Hz
60 *	APA	1024 x 768	256 among 256 K	8 x 16	128 x 48	77 MHz	72 Hz
64 *	APA	640 x 480	64 K	-	-	25 MHz	60 Hz
64 *	APA	640 x 480	64 K	-	-	31.5 MHz	72 Hz
65 *	APA	800 x 600	64 K	-	-	36 MHz	56 Hz
65 *	APA	800 x 600	64 K	-	-	40 MHz	60 Hz
66 *	APA	640 x 480	32 K	-	-	25 MHz	60 Hz
66 *	APA	640 x 480	32 K	-	-	31.5 MHz	72 Hz
67 *	APA	800 x 600	32 K	-	-	36 MHz	56 Hz
6Ci *	APA	1280 x 1024	16 among 256 K	8 x 16	160 x 64	75 MHz	87i Hz
6F *	APA	320 x 200	64 K	8 x 8	40 x 25	12.5 MHz	70 Hz
70 *	APA	320 x 200	16 M	8 x 8	40 x 25	12.5 MHz	70 Hz
71 *	APA	640 x 480	16 M	8 x 16	80 x 30	25 MHz	60 Hz

SEQUENCE OF THE BOARDS INSTALLED IN THE MOTHERBOARD SLOTS

Board	Max. No. of Boards	Slot	Slot Physical Address	Logic Identifier
PCI BUS				
Primary PCI SCSI controller (always present)	1	J18	4	PCI 2
Additional PCI SCSI controller or line controller with PCI bus	3	J19 J20 J17	5 6 7	PCI 3 PCI 4 PCI 5
EISA BUS (All Bus Master Slots)				
Multiport, LAN, WAN controllers with EISA or ISA (AT) interface	6	J7 J8 J9 J10 J11 J12	1 2 3 4 8 9	EISA 1 EISA 2 EISA 3 EISA 4 EISA 5 EISA 6
CBUS-II				
First CPU board (always present)	1	J33	-	-
Second CPU board	1	J35	-	-
Memory board	1	J34	-	-
BRIDGE BOARD BUS				
Bridge board (always present)	1	J23 and J25	-	PCI 1

3**Notes:**

- Numbers representing the physical addresses of the slots are serigraphed on the motherboard (from 1 to 9 in correspondance to the EISA and PCI slots). The configurator, on the other hand, identifies these slots with a logic identifier; the correspondance is shown in the previous table.
- Shared slot 4 physically consists of 2 slots, 1 PCI and 1 EISA. These two slots, however, are considered as a single shareable slot since only one board can be installed being these slots so close to each other; a PCI board can be installed in the PCI slot (upper) while an EISA, ISA or ISA Plug & Play board can be installed in the EISA slot (lower). In this system the primary PCI SCSI controller is always installed in the PCI slot.
- As far as the PCI and EISA slots are concerned, there are no priorities to respect. The DPT RAID SCSI controllers must be installed in sequential slots.

BOARD BA2179 P. 2.1 (P.c.b. Code 654332 D) EVOLUTION

DATE	LEV.	REV.	VIMO CODE	REASON FOR CHANGE	APPLIC.
04/95	Nasc	F7	562239 C	New board. The compatible BIOS is labelled WE00. The first BIOS release is 1.02 code 562312 V lev Nasc. and is only compatible with the SNX 200. The BIOS evolutions are described further on.	Factory
1 st return	01			<ul style="list-style-type: none"> - Solved the problem with the system password malfunction and the incorrect loading of register 92 due to different ESC timings with respect to the standard EISA cycle: replace component WP20 in pos. U8 with component WP42 and add one capacitor. - Corollary data path evolution from DPX to DPX2 in U43 and U47. - Replacement of phased-out component GD5422 with GD5424 in pos. U5. - Replacement of MCA connector code in pos. J23 J25, J33, J34, J35. Board no longer being manufactured, modification to be made upon first return or during a malfunction.	Field
1 st return	01S1			Systematic memory errors during the POD when using alternative DIMMs: mount eight 47 pF capacitors in pos. C326, C328, C330, C318, C320, C321, C323, C324 between pins 110 and 112 of connectors SC1, SC2, SC3, SC5, SC6, SC7, SC8 and between pins 26 and 28 of SC4. Board no longer manufactured, modification to be made upon first return or during repair.	Field
1 st return	01S2			Noise reduction on the Byte-Enable signals: <ul style="list-style-type: none"> - Add four 470 pF 50 V capacitors CX1, CX2, CX3, CX4 and one 0 Ohm resistor RX on side B; CX1 and CX2 side by side between pins F15 and F17 of connector J10, make a wiring between J10 pin F13 and CX1-CX2, mount CX3 between pins J10 pins F18 and F19, mount CX4 and RX side by side between J10 pins E15 and E17 - Add diode BAR43S, DX on side B up-side down, in parallel with C158 - Wire between DX and R345. Random writes to printer at system power off: <ul style="list-style-type: none"> - Replace 1 KOhm resistors R498, R507, R532 with 4.7 KOhm 1/10 W - T5% resistors. Board no longer manufactured, modification to be made upon first return or during repair.	Field
-	01S3			Keyboard controller phase-out: as an alternative to component 8742AH, use the N87C42 with FW WE36. Real Time Clock phase out: as an alternative to the DS1287 component use the DS12887A. Board no longer manufactured, apply when components are out of stock.	Field

BOARD BA2193 P. 2.2 (P.c.b. Code 654357 N) EVOLUTION

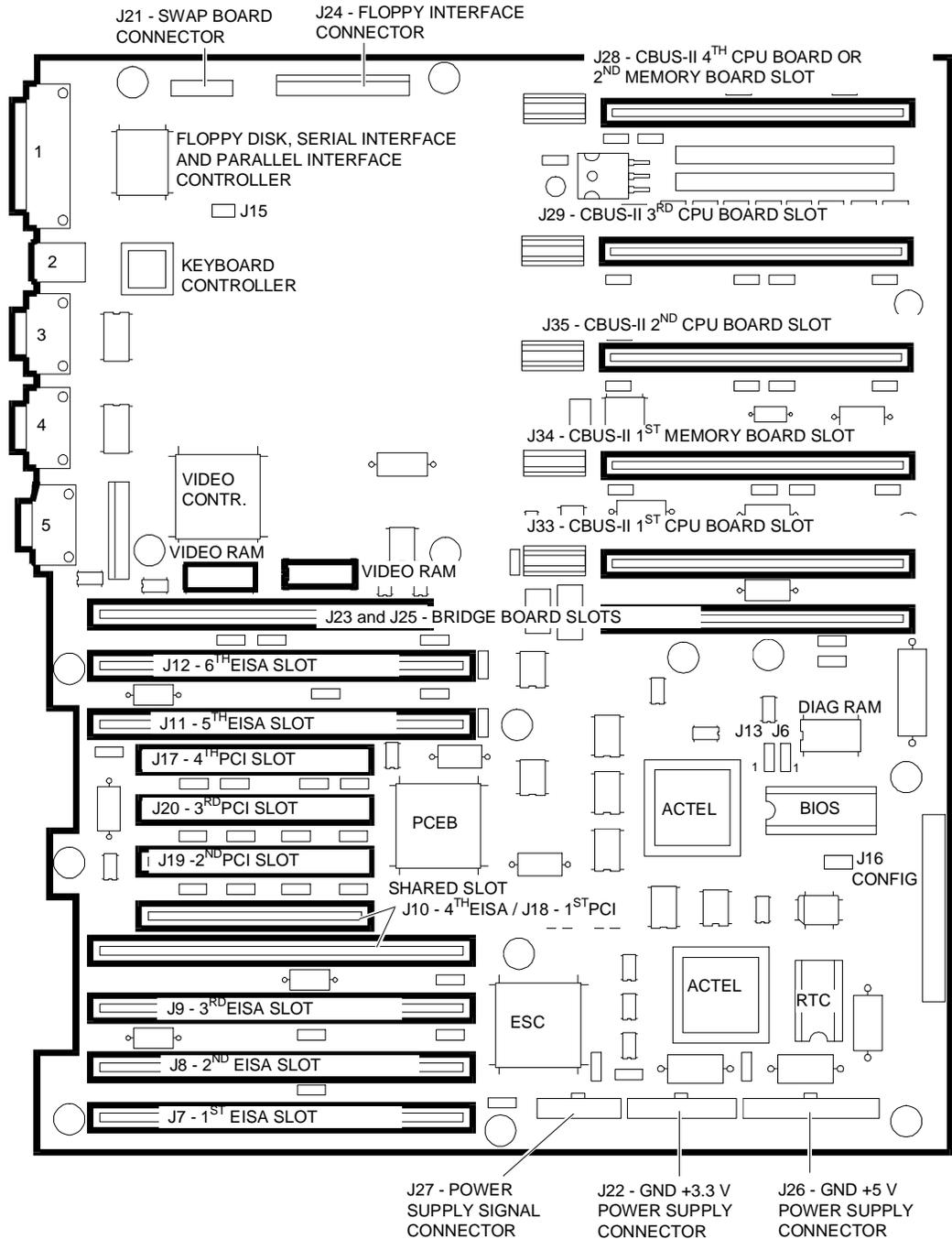
DATE	LEV.	REV.	VIMO CODE	REASON FOR CHANGE	APPLIC.
04/95	Nasc	B3	562277 A	New board which replaces the BA2179 and includes its wirings. The compatible BIOS for this board is labelled WE00. The first BIOS release is 1.02 code 562312 V lev. Nasc. The BIOS evolutions are described further on.	Factory
06/95	01			System password malfunction and incorrect loading of register 92 due to different ESC timings with respect to the standard EISA cycle: replace component in pos. U8 with component code 210731C	Factory
-	02			<ul style="list-style-type: none"> - Corollary data path evolution at second level; the DPX2 s can be used in pos. U43 and U47 in replacement of the DPXs. - Phased-out of component GD5422:as an alternative, use GD5424 in pos. U5. - Update of the MCA connector code: use code 5780016K in alternative to 5788202P in pos. J23 J25, J33, J34, J35. Board no longer manufactured, modification to be applied in field. The DPX2s are used in case the DPXs are not available; in case of replacement, both components on the board need to be replaced.	Field
1 st return	02S1			Systematic memory errors during the POD when using alternative DIMMs: mount eight 47 pF capacitors in pos. C326, C328, C330, C318, C320, C321, C323, C324 between pins 110 and 112 of connectors SC1, SC2, SC3, SC5, SC6, SC7, SC8 and between pins 26 and 28 of SC4. Board no longer manufactured, modification to be made upon first return or during repair.	Field
1 st return	02S2			Noise reduction on the Byte-Enable signals: <ul style="list-style-type: none"> - Add four 470 pF 50 V capacitors CX1, CX2, CX3, CX4 and one 0 Ohm resistor RX on side B; CX1 and CX2 side by side between pins F15 and F17 of connector J10, make a wiring between J10 pin F13 and CX1-CX2, mount CX3 between pins J10 pins F18 and F19, mount CX4 and RX side by side between J10 pins E15 and E17 - Add diode BAR43S, DX on side B up-side down, in parallel with C158 - Wire between DX and R345. Random writes to printer at system power off: <ul style="list-style-type: none"> - Replace 1 KOhm resistors R498, R507, R532 with 4.7 KOhm 1/10 W - T5% resistors. Board no longer manufactured, modification to be made upon first return or during repair.	Field
-	02S3			Keyboard controller phase-out: as an alternative to component 8742AH, use the N87C42 with FW WE36. Real Time Clock phase out: as an alternative to the DS1287 component use the DS12887A. Board no longer manufactured, apply when components are out of stock.	Field

BOARD BA2241 P 2.3 (P.c.b. Code 654357 N) EVOLUTION

DATE	LEV.	VIMO CODE	REASON FOR CHANGE	APPLIC.
06/95	Nasc	210732 D	New board which replaces the BA2193 and includes it wirings. The compatible BIOS for this board is labelled WE00. The first BIOS release is 1.02 code 562312 V lev. Nasc. The BIOS evolutions are described further on.	Factory
10/95	01		- Phase-out of component GD5422: as an alternative use component GD5424 in pos. U5. - MCA connector code update: use code 5780016K as an alternative to code 5788202P in pos. J33, J34, J35, J23, J25.	Factory
10/95	02		Systematic memory errors during the POD when using alternative DIMMs: mount eight 47 pF capacitors in pos. C326, C328, C330, C318, C320, C321, C323, C324 between pins 110 and 112 of connectors SC1, SC2, SC3, SC5, SC6, SC7, SC8 and between pins 26 and 28 of SC4.	Factory
11/95	03		Noise reduction on the Byte-Enable signals: - Add four 470 pF 50 V capacitors CX1, CX2, CX3, CX4 and one 0 Ohm resistor RX on side B; CX1 and CX2 side by side between pins F15 and F17 of connector J10, make a wiring between J10 pin F13 and CX1-CX2, mount CX3 between pins J10 pins F18 and F19, mount CX4 and RX side by side between J10 pins E15 and E17 - Add diode BAR43S, DX on side B up-side down, in parallel with C158 - Wire between DX and R345. Random writes to printer at system power off: - Replace 1 KOhm resistors R498, R507, R532 with 4.7 KOhm 1/10 W - T5% resistors.	Factory
12/95	01AG		Keyboard controller phase-out: as an alternative to component 8742AH, use the N87C42 with FW WE36. Real Time Clock phase out: as an alternative to the DS1287 component use the DS12887A.	Factory
4/96	02AG		Phase out of PCI EISA Bridge component 82375 step B0 code 4890093N. Replaced by step B1 code 4890124M.	Factory
4/96	04		Random problems concerning the recognition of the type of monitor connected during the execution of the vid_dia/c diagnostic. Change the RGB signals pull-down resistors R2, R3 and R4 from 75 Ohm to 150 Ohm.	Factory

MOTHERBOARD BA2178 / BA2236 (FOR THE SNX 400)

3



- 1 Parallel interface connector
- 2 Keyboard connector (above), mouse connector (below)
- 3 Serial interface connector (COM1)
- 4 Serial interface connector (COM2)
- 5 VGA video interface connector

JUMPERS

JUMPER J16 CONFIG	DESCRIPTION
ON	The system is set as defined by the default configuration. The configuration stored in CMOS RAM is ignored, therefore including all security features.
OFF *	Normal setting, at power on the system is set as defined by the configuration stored in CMOS RAM.

JUMPER J13 FLASH_VPP	DESCRIPTION
PINs 1-2 ON *	Normal operation. VPP (+12 V) voltage is applied to the BIOS Flash EPROM. The setting of jumper J6 FLASH_WR defines whether the system EPROM is write protected or not, under software control.
PINs 2-3 ON	Diagnostic setting. VPP voltage is pulled-up to +5 V and Flash EPROM programming is blocked.

JUMPER J6 FLASH_WR	DESCRIPTION
PINs 1-2 ON *	Normal operation. The Flash EPROM write signal is under software control. The setting of jumper J13 FLASH_VPP defines whether the System EPROM is write protected or not.
PINs 2-3 ON	Diagnostic setting. The Flash EPROM write signal pulled-up to +5 V and Flash EPROM programming is blocked.

JUMPER J15	DESCRIPTION
OFF	This jumper is reserved for future diskette drive expansions using 2.88 MB drives. Must always be set to OFF.

Notes:

- *On SNX 400 systems the motherboard does not contain system memory and therefore at least one ME2037 memory board must be installed in the dedicated CBUS-II slot.*
- *An onboard video RAM of 1 MB is installed (the expansion chip is always present). The controller supports the same video modes as the SNX 200 motherboard.*

SEQUENCE OF BOARDS INSTALLED IN THE MOTHERBOARD SLOTS

Board	Max. No. of Boards	Slot	Slot Physical Address	Logic Identifier
PCI BUS				
Primary PCI SCSI controller - always present	1	J18	4	PCI 2
Additional PCI SCSI controller or line controller with PCI bus	3	J19 J20 J17	5 6 7	PCI 3 PCI 4 PCI 5
EISA BUS (All Bus Master Slots)				
Multiport, LAN, WAN controllers with EISA or ISA (AT) interface	6	J7 J8 J9 J10 J11 J12	1 2 3 4 8 9	EISA 1 EISA 2 EISA 3 EISA 4 EISA 5 EISA 6
CBUS-II				
First CPU board (always installed)	1	J33	-	-
First memory board (always installed)	1	J34	-	-
Second CPU board	1	J35	-	-
Third CPU board	1	J29	-	-
Fourth CPU board or second memory board	1	J28	-	-
BRIDGE BOARD BUS				
Bridge board (always installed)	1	J23 and J25	-	PCI 1

3**Notes:**

- Numbers representing the physical addresses of the slots are serigraphed on the motherboard (from 1 to 9 in correspondance to the EISA and PCI slots). The configurator, on the other hand, identifies these slots with a logic identifier; the correspondance is shown in the previous table.
- Shared slot 4 physically consists of 2 slots, 1 PCI and 1 EISA. These two slots however, are considered as a single, shareable, slot since only one board can be installed being these slots so close to each other; a PCI board can be installed in the PCI slot (upper) while an EISA, ISA or ISA Plug & Play board can be installed in the EISA slot (lower). In this system the primary PCI SCSI controller is always installed in the PCI slot.
- As far as the PCI and EISA slots are concerned, there are no priorities to respect.
- The DPT RAID SCSI controllers must be installed in sequential slots. If the system is in a dual host configuration refer to the related section in Appendix J for information on the location of the GO2098 board.

BOARD BA2178 (P.c.b. Code 654332 D) EVOLUTION

DATE	LEV.	REV.	VIMO CODE	REASON FOR CHANGE	APPLIC.
6/95	Nasc	B4	562236 Z	New BIOS. The compatible BIOS for this board is labelled WE00. The first BIOS release is 1.04 code 562312 V lev 01 and is compatible for the SNX 200 and SNX 400. The BIOS evolutions are described further on.	Factory
7/95	01			Replacement of phased-out component GD5422 with component GD5424 in pos. U5. Replacement of MCA connector codes in pos. J23, J25, J28, J29, J33, J34, J35.	Factory
8/95	02			The new supply of AMCC3507 components (clock drivers) indicates a criticality on the CBUS clock signals which could cause errors during the POD or random system crashes. Replace the 33 Ohm resistors R48, R44, R36, R43, R47, R91, R84, R68, R74, R62, R53, R58 with 0 Ohm resistors.	Factory
11/95	03			Noise reduction on the Byte-Enable signals: - Add four 470 pF 50 V capacitors CX1, CX2, CX3, CX4 and one 0 Ohm resistor RX on side B; CX1 and CX2 side by side between pins F15 and F17 of connector J10, make a wiring between J10 pin F13 and CX1-CX2, mount CX3 between pins J10 pins F18 and F19, mount CX4 and RX side by side between J10 pins E15 and E17 - Add diode BAR43S, DX on side B up-side down, in parallel with C158 - Wire between DX and R345. Random writes to printer at system power off: - Replace 1 KOhm resistors R498, R507, R532 with 4.7 KOhm 1/10 W - T5% resistors.	Factory
12/95	01AG			Keyboard controller phase-out: as an alternative to component 8742AH, use the N87C42 with FW WE36. Real Time Clock phase out: as an alternative to the DS1287 component use the DS12887A.	Factory

BOARD BA2236 (P.c.b. Code 654437 X) EVOLUTION

DATE	LEV.	VIMO CODE	REASON FOR CHANGE	APPLIC.
12/95	Nasc	210720 M	New board which replaces the BA2178 and which includes its wirings. The compatible BIOS for this board is the WE00. The first BIOS release is 1.08 code 562312 V lev. 03. The BIOS evolutions are described further on.	Factory
4/96	02AG		Phase out of PCI EISA Bridge component 82375 step B0 code 4890093N. Replaced by step B1 code 4890124M.	Factory
4/96	01		Random problems concerning the recognition of the type of monitor connected during the execution of the vid_dia/c diagnostic. Change the RGB signals pull-down resistors R2, R3 and R4 from 75 Ohm to 150 Ohm.	Factory

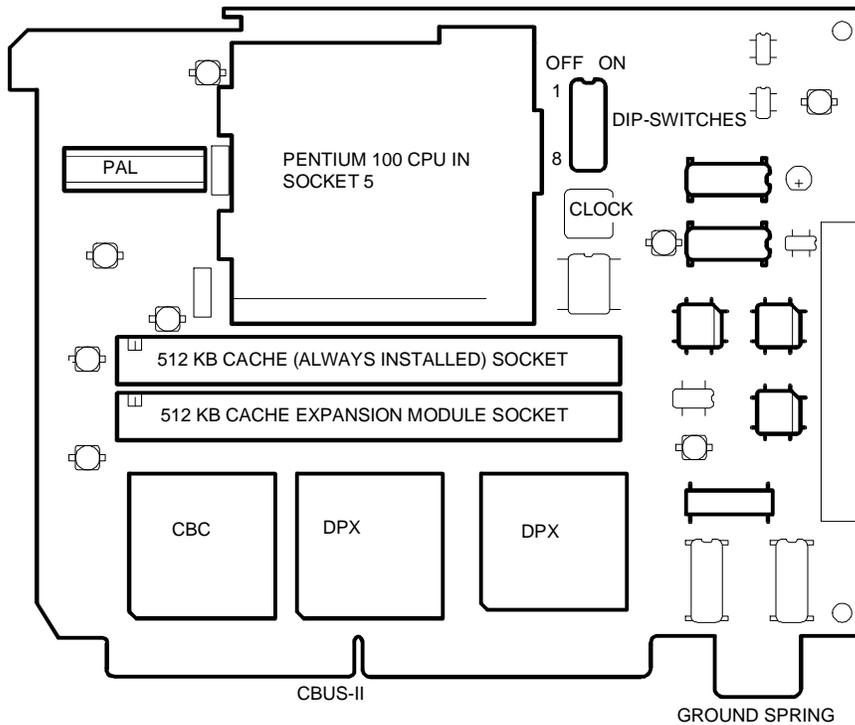
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BIOS WE00 EVOLUTION FOR THE BA2179, BA2193, BA2241 (SNX 200), BA2178, BA2236 (SNX 400)

DATE	LEV.	BIOS	CODE	REASON FOR CHANGE
04/95	Nasc	1.02 WE00	562312 V	<p>New BIOS WE00. The compatible levels are: Motherboard P2.1, Rev. F2 or later, CPU board P2.1 Rev. B or later, Bridge with discrete components P3.0 Rev. D or later, memory board Rev. B or later, Keyboard controller 8.50 or later.</p> <ul style="list-style-type: none"> - This BIOS release is only compatible with the SNX 200. - Memory board ME2037 is not handled and therefore the maximum memory expansion of 256 MB is only reached on the motherboard.
06/95	01	1.04 WE00		<p>BIOS release compatible with the SNX 200 and SNX 400.</p> <ul style="list-style-type: none"> - Support for memory board ME2037. - The Lowest-in-Group interrupt test during the POD has been eliminated due to problems in configurations with four CPUs. - Disabled the addresses above 3 GB to allocate PCI boards; to avoid conflicts with reserved memory they are now allocated below 3 GB. Once the BIOS is replaced, activate the ROM Setup or User Disk to reconfigure any PCI board. - Solved the problem with the LPT port. - Support for mixed DIMM configurations.
08/95	02	1.05 WE00		<p>New BIOS release adopted for the following reasons:</p> <ul style="list-style-type: none"> - When the system is configured with BIOS 1.05, returning to any other earlier BIOS release requires the insertion of the system reconfiguration by-pass jumper. - Correct handling of the Bridge PCIB ASIC IF2037/IF2044 board and therefore the support for memory configurations over 512 MB. - The physical slot number is displayed for the PCI boards installed in the motherboard slots - The NMI errors are no longer displayed for the PCI boards that do not generate parity correctly - The POD correctly signals an error if the system is configured with an IDE or Arrow SCSI hard drive but this drive is not actually present. - Possibility of inserting CPU boards in every CBUS II slot available. - With more than one CPU board, the cache optimization bit is disabled to avoid problems with RAM shadow. - The correct serial port data are written to NVRAM when the secondary port addresses are selected - The PCI Turbo reset is no longer executed through the PCIB following a ctrl-alt-del - The diagnostic SRAM chip is no longer required for the ASIC board.

DATE	LEV.	BIOS	CODE	REASON FOR CHANGE
11/95	03	1.08 WE00	562312 V	<p>New BIOS release which must be used with User Disk release 1.05. The new BIOS allows to:</p> <ul style="list-style-type: none"> - Handle the 100 MHz or 133 MHz UC200X CPU board. - Solve the problem concerning the loss of some self-configuration parameters of the Dagger/Lance board from NVRAM. - Insert the congruency test of the cache size set by means of dip-switches and the true size in the CPU; any incongruency detected will be signalled by the POD. - Display, during the POD, of the work frequencies of the CPUs present. - Solve the problem with the All-In-Group CPU interrupt test. - Modify the ROM Setup for the correct management of the multifunction boards whose base address registers contain the value 0. - Adjust delays between consecutive I/O operations and following a reset for compatibility with slow ISA boards. - Solve the possible clearing of the Option ROM area during RAM test or while using another option ROM.
03/96	04	1.09 WE00		<p>New BIOS release:</p> <ul style="list-style-type: none"> - SNARF disabled by default - Solves the problem with the management of "Masked IRQ Routing Registers" - All configuration errors are logged. <p>This BIOS release must only be used for SOGEI/COMIT systems.</p>
03/95	05	1.10 WE00		<p>New BIOS release:</p> <ul style="list-style-type: none"> - PCI turbo reset only added in the BIOS power-on sequence; this solves the problem of an intermittent reset with the DPT Wide controller. - Solves system hangs during the POD when the 3com 3c590/95 board is installed.
10/96	06	1.22 up2 WE00		<p>New BIOS release:</p> <ul style="list-style-type: none"> - New Adaptec code 1.24 for the management of the SCC PCI 144W (GO2109 Lance) board. - Utility for the management of boards using the Cyrrus 5422 or 5429 chip. - ROM Setup Utility no longer available. <p>This BIOS release must be associated to the level 2 Starter Kit which includes User Disk release 1.6.</p>
2/97	07	1.23 WE00		<p>BIOS replacement due to the incorrect management of the year 2000.</p>

CPU BOARD GO2056 / GO2071 (SNX 200/RS/RM 100) GO2078 (SNX 400/RS/RM 100)



The second level cache consists of a SIMM installed in a specific socket. A 512 KB (1 SIMM) basic memory capacity is always present and can be expanded to 1 MB by installing a second SIMM into the adjacent slot. The DIP-switches need to be set depending on the cache memory capacity.

DIP-SWITCHES								CACHE MEMORY CAPACITY
SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8	
ON	OFF	ON	OFF	OFF	ON	OFF	ON	512 KB
ON	OFF	ON	OFF	ON	OFF	ON	OFF	1 MB

Note: All other configurations are reserved and must not be used.

Notes:

- The CPU boards look the same: the GO2056/2071 is installed on the SNX 200 and its CPU has a 100/66 MHz clock, while the GO2078 is installed on the SNX 400 and its CPU has a clock of just below 96/64 MHz.
- At least one CPU board is always installed in the system: the SNX 200 can host up to two while the SNX 400 can host up to four.
- To cool down the processor a passive heatsink specific for the SNX 200/400 (without fan) be simply fitted on the chip.

BOARD GO2056 P. 2.2 (P.c.b. Code 654334 F) EVOLUTION

DATE	LEV.	REV.	VIMO CODE	REASON FOR CHANGE	APPLIC.
04/95	Nasc	C	562208 N	Introduction of the board for SNX 200.	Factory
10/95	01			System hang or panic, particularly evident in the SCO environment, caused by memory errors. When Cypress memories are present in pos. U22 and U24, install a 150 pF capacitor between U24 pin 27 and C50 pin 2, on side B.	Factory

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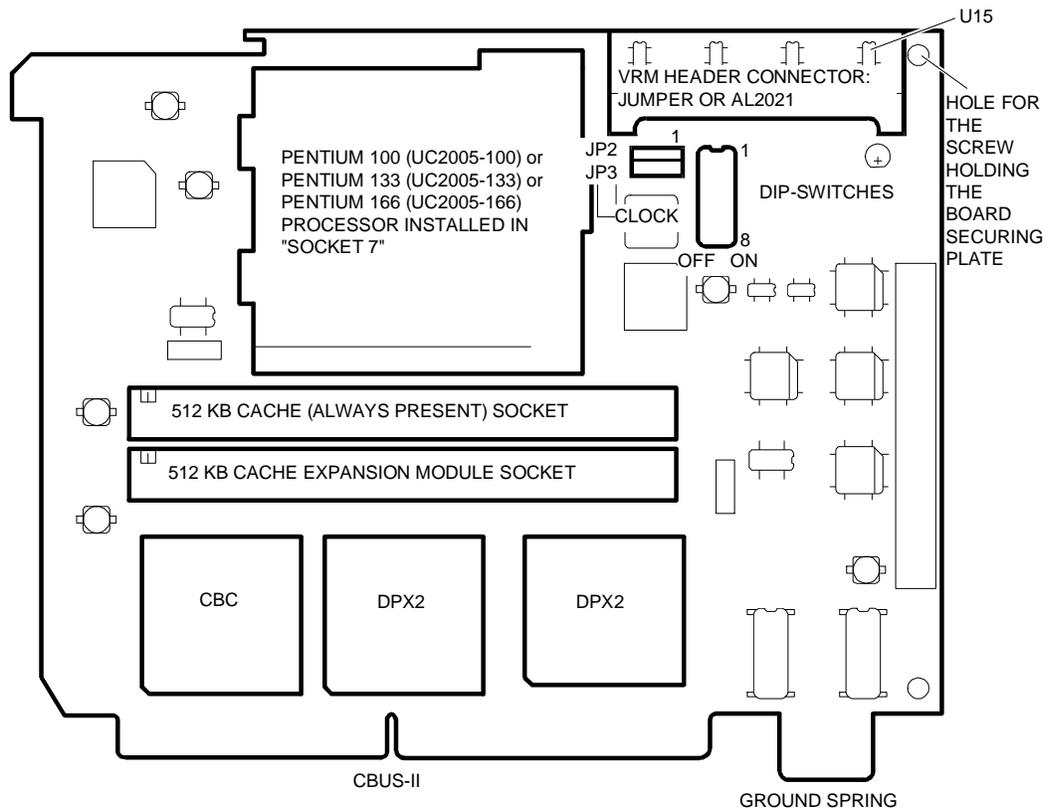
BOARD GO2071 P. 2.3 (P.c.b. Code 654379 U) EVOLUTION

DATE	LEV.	VIMO CODE	REASON FOR CHANGE	APPLIC.
04/95	Nasc	562349 J	This board replaces the GO2056 and recovers the wirings made.	Factory
06/95	01		Replacement of the Data Path Corollary (DPX), in positions U3 and U4, with a second level data path (DPX2).	Factory
10/95	02		System hang or panic, particularly evident in the SCO environment, caused by memory errors. When Cypress memories are present in pos. U22 and U24, install a 150 pF capacitor between U24 pin 27 and C50 pin 2, on side B.	Factory

BOARD GO2078 P. 2.4 (P.c.b. Code 654379 U) EVOLUTION

DATE	LEV.	VIMO CODE	REASON FOR CHANGE	APPLIC.
06/95	Nasc	210708 W	This board is introduced for the SNX 400. The GO2078 has the same functions as the GO2071, the only difference between the two being that the GO2078 uses DPX2 processors and has a 64 MHz oscillator while the GO2071 uses DPX1 processors and has a 66.6 MHz oscillator.	Factory
10/95	01		System hang or panic, particularly evident in the SCO environment, caused by memory errors. When Cypress memories are present in pos. U22 and U24, install a 150 pF capacitor between U24 pin 27 and C50 pin 2, on side B.	Factory

CPU BOARDS UC2004/2005-100 (SNX 200/400/RS/RM 100) UC2004/2005-133 (SNX 200/400/RS/RM 133 AND 400 133 W) UC2005-166 (SNX 400/RS/RM 166 W)



Note: The name of board UC2004/2005 remains unchanged for the 100, 133 and 166 MHz version. For simplicity, this guide distinguishes between the three versions with UC200X-100, UC200X-133 and UC200X-166.

The 66.67/100 MHz CPU board UC200X-100 is an evolution of the previous GO2071/2078 CPU board models. This new board comes in a single version, is compatible with the SNX 200 and SNX 400 and replaces the previous board versions.

The 66.67/133 MHz CPU board UC200X-133 is identical to the UC200X-100 with the exception of the processor installed (it uses the Pentium 133 instead of the Pentium 100), and on the setting of the processor type selection jumpers.

The 66.67/166 MHz CPU board UC200X-166 is identical to the UC200X-100 with the exception of the processor installed (it uses the Pentium 166 instead of the Pentium 100), and on the setting of the processor selection jumpers. This board is not installed on the SNX 200.

Note: Earlier GOXX boards and the new UC200X-100 boards can be installed on the same system. On the other hand boards with a different processor, such as the GO20XX/UC200X-100 and UC200X-133-166, cannot be installed on the same system.

Note: Boards UC200X-100 and UC200X-133 are correctly managed from BIOS release 1.08, User Disk 1.05, System Test 1.04. Boards UC2005-166 are correctly managed from BIOS release 1.10, User Disk 1.05, System Test 1.04. In case the GO20XX and UC200X-100 boards are on the same system, the BIOS, User Disk and System Test releases must be updated to the indicated releases or later.

The main differences between the UC200X boards and the earlier CPU boards are listed below:

- Single architecture for both systems, therefore the 100 MHz, 133 MHz and 166 MHz CPU boards are no longer diversified.
- The 66.67 MHz clock is now also available for the SNX 400; before, with the GO2078 board, the clock was 64 MHz.
- The new boards are equipped with the new Socket 7 instead of Socket 5 so as to guarantee total compatibility with future Intel processors. Socket 7, together with the VRM Header connector which is used for the installation of an external voltage regulator provided with the processor, allows the installation of processors that are not powered in the standard +3.3 V mode thus requiring a separate VRM (Voltage Regulator Module).
The previous CPU boards only support the processors that are powered in the standard mode.

The Pentium 100 and Pentium 133 processors, currently installed on the new boards, are powered with the standard +3.3 V and therefore a shorting block is installed in the VRM Header connector. This shorting block is none other than a jumper (code 5780017P) which simply connects the +3.3 V to the processor power supply instead of the VRM.

The Pentium 166 processor, instead, must be powered in the +3.45 V VRE mode and therefore requires that the AL2021 (code 210693 F) VRM be attached to the VRM Header connector.

The VRM provides the VRE power supply to the processor core and I/O, drawing it directly from the +5 V; the output voltage is 3.4-3.6 V while the maximum current provided is 4.25 A.

- The new boards are compatible with the P55C processor and with the new family of Intel OverDrives, namely the P54CT and P54CBT. The previous CPU boards are only compatible with the P54CT.
- Possibility of selecting a 2/3, 1/2, 2/5 and 1/3 bus/core clock ratio on the new boards. On the previous CPU boards this ratio was fixed at 2/3.
- The Pentium 100 processor is cooled down by a 16.5 mm high heatsink while the Pentium 133 and Pentium 166 are cooled down by a 25 mm heatsink.

The second level cache consists of a SIMM installed in a specific socket. A 512 KB (1 SIMM) basic memory capacity is always present and can be expanded to 1 MB by installing a second SIMM into the adjacent slot. The DIP-switches need to be set depending on the cache memory capacity.

DIP-SWITCH								CACHE MEMORY SIZE
SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8	
ON	OFF	ON	OFF	OFF	ON	OFF	ON	512 KB
ON	OFF	ON	OFF	ON	OFF	ON	OFF	1 MB

Note: All other configurations are reserved and must not be used.

For total compatibility with the Intel Pentium processors, the two 3-pin jumpers JP2 and JP3 allow the processor clock to be set and therefore adapt the board to the type of processor installed.

CPU BOARD	PROCESSOR CLOCK	JUMPER JP3	JUMPER JP2	BUS/CORE RATIO	BUS/CORE CLOCK
UC2005-100	Pentium 100	1-2	1-2	2/3	66/100
UC2005-133	Pentium 133	1-2	2-3	1/2	66/133
UC2005-166	Pentium 166	2-3	2-3	2/5	66/167
Not available.	Pentium 200	2-3	1-2	1/3	66/200

Note: It is important to correctly set these jumpers since the processor clock may differ otherwise (for example, the Pentium 133 with jumpers set for 100 MHz will have a clock reduced to 100 MHz, while setting a click which is higher than the processor's specified value will make the processor work out of its own specifications). These are factory set and their setting must not be changed.

Note: When installing the new UC200X CPU boards, in correspondence to the screw that secures the CPU board securing bracket, insert two plastic washers (code 563582N) between the bracket and the board. Doing so will avoid component U15 (near the screw hole) from short circuiting. The plastic washers are inserted in the kit which contains the board.

BOARD UC2004 P. 3.0 (P.c.b. Code 654408 K) EVOLUTION

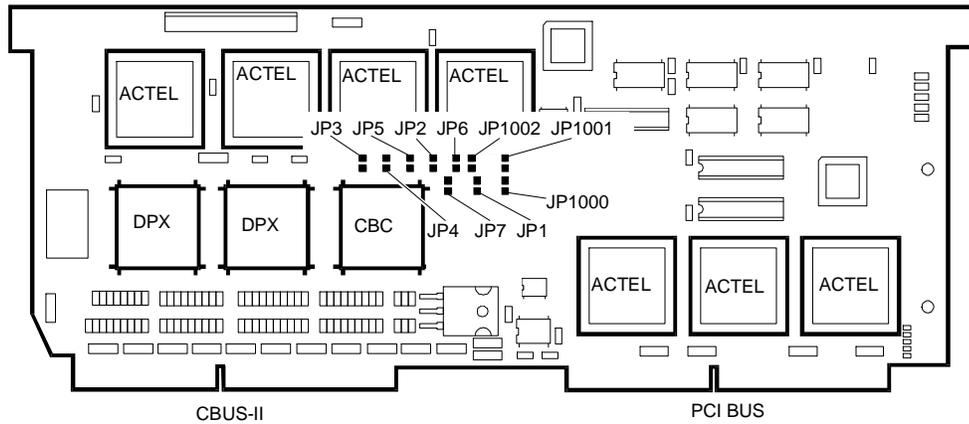
DATE	LEV.	VIMO CODE	REASON FOR CHANGE	APPLIC.
12/95	Nasc	562406 V	New CPU board with a 133 MHz VRM P54C processor for the SNX 200/400 133 MHz.	Factory

BOARD UC2005 P. 3.2 (P.c.b. Code 654461 F) EVOLUTION

DATE	LEV.	VIMO CODE	REASON FOR CHANGE	APPLIC.
01/96	Nasc	210781 F	New board that replaces the UC2004 and recovers its wirings. With a 100 MHz processor, this board replaces the GO2071 on the SNX 200 100 MHz and the GO2078 on the SNX 400 100 MHz.	Factory
06/96	01AG		Board component supply optimization; release of a strategic B.O.M.	Factory

CBUS-II - PCI BRIDGE BOARD IF2018 / IF2039

Note: This board uses discrete ACTEL components.



JUMPERS (default)				
JP3 = OFF	JP4 = OFF	JP5 = OFF	JP2 = OFF	JP6 = OFF
JP1002 = ON	JP1001 = OFF	JP1000 = OFF	JP7 = OFF	JP1 = OFF

Note: These jumper settings must never be changed; they must be kept to their default setting.

BOARD IF2018 P. 3.0 (P.c.b. Code 654321 A) EVOLUTION

DATE	LEV.	REV.	VIMO CODE	REASON FOR CHANGE	APPLIC.
04/95	Nasc	G3	562209 P	Board with discrete components introduced. This board uses DPX1 chips and can therefore only be used on SNX 200 models. It supports the maximum memory configuration of 512 MB and therefore 256 MB on the motherboard and 256 KB on the ME2037 for the SNX 200 while a single 512 MB memory board is used on the SNX 400.	Factory
04/95	01	G4/G5		Solved the problem with occasional client disconnections in the NetWare 3.12 and 4.1 environment due to the incorrect generation of the PLOCK signal. Replace the component in pos. U16 with code 562416 N. Problem on the SNX 400.	Factory
05/95	02	H		Match replacement in position U15 to correct the disconnection of the client when running NetWare 3.12, 4.1 and UNIX SV with the OC212X and NCU 9141/II boards.	Factory
-	03MD			Evolution of the Corollary DATA-PATH (DPX) to the second level (DPX2): replace component code 4890074Z in positions U17, U19 with component code 4890114L. Board no longer manufactured, apply only if the older components are no longer available for repair.	Field

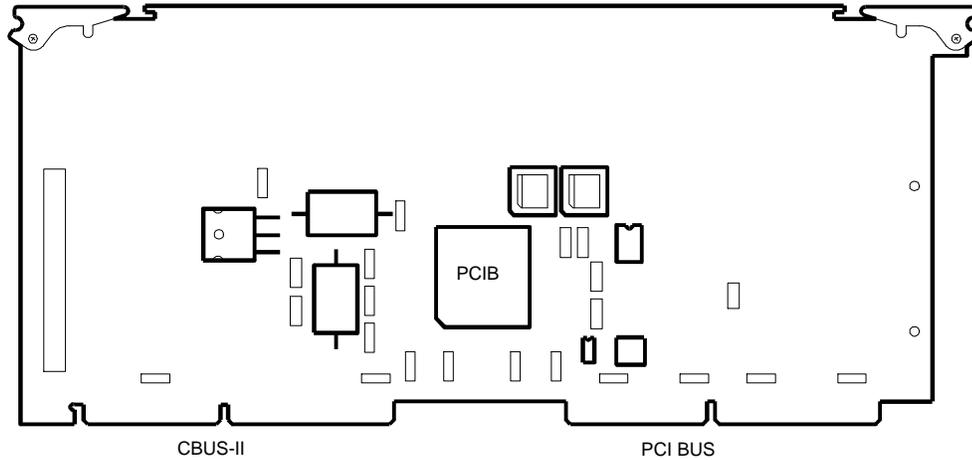
DATE	LEV.	REV.	VIMO CODE	REASON FOR CHANGE	APPLIC.
-	03		562209 P	PCI reset switching. Problems with the 3com 3c590/95 board: the diagnostic does not see the board and/or the operating system does not load the SW drivers. Replace the PAL22V10-10 RSTGEN (U6) funct. WP14 code 562353E with PAL22V10-10 funct. WP71 code 212665G. Board no longer manufactured, modification to apply only in case of repair.	Field

BOARD IF2039 (P.c.b. Code 654321 A) EVOLUTION

DATE	LEV.	VIMO CODE	REASON FOR CHANGE	APPLIC.
06/95	Nasc	210713 A	This board replaces the IF2018. It recovers the wirings made on the previous board and uses DPX2 chips instead of the DPX1. It is compatible with the SNX 200 and SNX 400. It supports the maximum memory configuration of 512 MB and therefore 256 MB on the motherboard and 256 KB on the ME2037 for the SNX 200 while a single 512 MB memory board is used on the SNX 400.	Factory
-	01AG		Replacement of the PAL22v10-10 RSTGEN (U6) function WP14 with the PAL22v10-10 function WP71 for: - PCI reset switching - Problems with 3com 3c590/95 boards; the diagnostic does not see the board and the O.S. does not load the drive. This RDM is for field use only, to be applied in case of failure.	Field

CBUS-II - PCI BRIDGE ASIC BOARD IF2037/IF2044

Note: This board uses a single ASIC component which replaces the discrete ACTEL components. Board functions remain the same.



Note: There are no jumpers on this board.

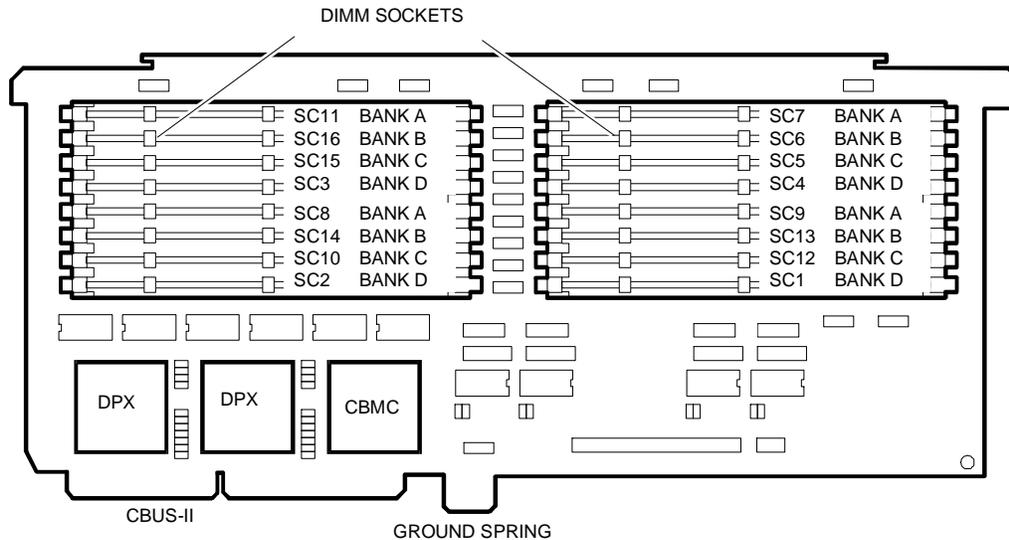
BOARD IF2037 P 1.1 (P.c.b. Code 654420 A) EVOLUTION

DATE	LEV.	VIMO CODE	REASON FOR CHANGE	APPLIC.
8/95	Nasc	210674 K	This board with a single ASIC component replaces the IF2018 and IF2039 boards. It supports the maximum memory configuration of 1 GB, and therefore 768 MB on the SNX 200 (256 MB on the motherboard and 512 MB on the ME2037), and 1 GB on the SNX 400 (two ME2037 boards with 512 MB of memory each). BIOS release 1.05 or later is required in order to be able to use this board	Factory

BOARD IF2044 P 2.2 (P.c.b. Code 654429 F) EVOLUTION

DATE	LEV.	VIMO CODE	REASON FOR CHANGE	APPLIC.
11/95	Nasc	210785 B	New board replacing the IF2037 and incorporating all the wirings.	Factory

MEMORY BOARD ME2037



This memory board is optional for the SNX 200 since part of this system's memory already resides on the motherboard. For the SNX 400, instead, at least one memory board must be installed since the motherboard on these models has no resident memory.

This memory board has a total of 16 sockets divided in to four banks and is capable of hosting ECC DIMMs (Dual In-Line Memory Modules). Listed below are the rules to follow when configuring memory:

- The system sees its memory as being divided into four banks (A, B, C and D). Each banks has four sockets: Bank A with sockets SC7, SC8, SC9, SC11, Bank B with sockets SC6, SC13, SC14, SC16, Bank C with sockets SC5, SC10, SC12, SC15 and Bank D with sockets SC1, SC2, SC3 and SC4.
- The DIMMs must therefore be installed four at a time in order to fill the entire memory bank. DIMMs in the same bank must have the same capacity.
- Although not in the same memory bank, the system can host DIMMs of different capacities as long as the DIMMs with higher capacity are installed from Bank A and onwards to Bank D.
- Banks must be filled in sequential order, starting from Bank A. In the minimum system memory configuration, Bank A is entirely filled while Banks B to D are empty.
- The ME2037 memory board can only be installed on SNX 200 systems when both memory banks A and B on the motherboard are filled with DIMMs of the same capacity: eight 1M72 DIMMs = 64 MB or eight 4M72 DIMMs = 256 MB.
- An additional ME2037 memory board can only be installed on SNX 400 systems when all four memory banks A, B, C and D on the first ME2037 memory board are filled with DIMMs of the same capacity:
16 1M72 DIMMs = 128 MB or 16 4M72 DIMMs = 512 MB.
- The minimum memory capacity is 32 MB expandible to 512 MB with one board, or to 1 GB with two boards.
- There are no jumper settings to be made on the board; additional memory expansion DIMMs are automatically recognized by activating the ECU or the BIOS Setup Utility.

The following ECC DIMM modules can be used:

PDG NAME	CAPACITY	MEMORY EXPANSION KIT
EXM 32/60D	32 MB	Four 1 MBit x 72 bit, 60 ns (8 MB x 4) DIMMs. The kit fills one bank.
EXM 128/60D	128 MB	Four 4 MBit x 72 bit, 60 ns (32 MB x 4) DIMMs. Thekit fills one bank.

The tables below show the possible memory configurations for the SNX 200 and SNX 400 systems.

3

SNX 200 MEMORY CONFIGURATION (MOTHERBOARD + MEMORY BOARD)					
ON-BOARD MEMORY	BANK A	BANK B	BANK C	BANK D	TOTAL MEMORY
64 MB	32 MB				96 MB
64 MB	32 MB	32 MB			128 MB
64 MB	32 MB	32 MB	32 MB	32 MB	192 MB
64 MB	128 MB	128 MB			320 MB
64 MB	128 MB	128 MB	128 MB	128 MB	576 MB
256 MB	32 MB				288 MB
256 MB	32 MB	32 MB			320 MB
256 MB	32 MB	32 MB	32 MB		352 MB
256 MB	32 MB	32 MB	32 MB	32 MB	384 MB
256 MB	128 MB				384 MB
256 MB	128 MB	128 MB			512 MB
256 MB	128 MB	128 MB	128 MB	128 MB	768 MB

Note: The memory board is not supported on SNX 200 models with BIOS 1.02 and therefore the maximum memory configuration for this system is limited to the 256 MB which can be installed on the motherboard. The memory board is supported with BIOS 1.04, used by both the SNX 200 and 400, however the maximum memory configuration is limited to 512 MB due to the presence of the Bridge board with discrete components. The maximum memory configuration of 768 MB is only supported when the ASIC Bridge board is installed.

SNX 400 MEMORY CONFIGURATION								
FIRST MEMORY BOARD				SECOND MEMORY BOARD				
BANK A	BANK B	BANK C	BANK D	BANK A	BANK B	BANK C	BANK D	TOTAL MEMORY
32 MB								32 MB
32 MB	32 MB							64 MB
32 MB	32 MB	32 MB						96 MB
32 MB	32 MB	32 MB	32 MB					128 MB
32 MB	32 MB	32 MB	32 MB	32 MB				160 MB
32 MB	32 MB	32 MB	32 MB	32 MB	32 MB			192 MB
32 MB	32 MB	32 MB	32 MB	32 MB	32 MB	32 MB		224 MB
32 MB	32 MB	32 MB	32 MB	32 MB	32 MB	32 MB	32 MB	256 MB
32 MB	32 MB	32 MB	32 MB	128 MB	128 MB			384 MB
32 MB	32 MB	32 MB	32 MB	128 MB	128 MB	128 MB	128 MB	640 MB
128 MB								128 MB
128 MB	32 MB							160 MB
128 MB	128 MB							256 MB
128 MB	128 MB	32 MB						288 MB
128 MB	128 MB	128 MB						384 MB

SNX 400 MEMORY CONFIGURATION								
FIRST MEMORY BOARD				SECOND MEMORY BOARD				TOTAL MEMORY
BANK A	BANK B	BANK C	BANK D	BANK A	BANK B	BANK C	BANK D	
128 MB	128 MB	128 MB	32 MB					416 MB
128 MB	128 MB	128 MB	128 MB					512 MB
128 MB	128 MB			32 MB	32 MB			320 MB
128 MB	128 MB			32 MB	32 MB	32 MB		352 MB
128 MB	128 MB	128 MB	128 MB	32 MB				544 MB
128 MB	128 MB	128 MB	128 MB	32 MB	32 MB			576 MB
128 MB	128 MB	128 MB	128 MB	32 MB	32 MB	32 MB		608 MB
128 MB	128 MB	128 MB	128 MB	32 MB	32 MB	32 MB	32 MB	640 MB
128 MB	128 MB	128 MB	128 MB	128 MB				640 MB
128 MB	128 MB	128 MB	128 MB	128 MB	128 MB			768 MB
128 MB	128 MB	128 MB	128 MB	128 MB	128 MB	128 MB		896 MB
128 MB	128 MB	128 MB	128 MB	128 MB	128 MB	128 MB	128 MB	1024 MB

Note: On SNX 400 systems equipped with the Bridge board with discrete components, the maximum memory configuration is limited to 512 MB. The maximum memory configuration of 1 GB is only supported when the ASIC Bridge board is installed.

BOARD ME2037 P. 2.1 (P.c.b. Code 654356 M) EVOLUTION

DATE	LEV.	VIMO CODE	REASON FOR CHANGE	APPLIC.
6/95	Nasc	210711 G	Board introduced. This board is equipped with DPX2 components and can also be used by SNX 200 systems equipped with BIOS release 1.04 or later, in addition to the SNX 400 models.	Factory
10/95	01		Systematic memory errors during the POD; mount 16 capacitors.	Factory
6/96	01AG		Board component supply optimization; release of a strategic B.O.M.	Factory

NOTES AND LIMITATIONS

CONFIGURATION

- During the installation/removal of the CPU boards, slight interference of the cache on the CPU boards towards the CPUs installed.
- On the SNX 200/400/RM, mechanical interference of the cache with the box structure so the CPU board cannot be installed in slot 1; only memory boards can be installed.
- If the user decides to not use some of the HDUs installed in the system and removes these from the rank, the HDUs must be completely removed in order to avoid that the HDU rails cause the loss of the hot swap feature.
- The AT/EISA I/O boards that work in the edge triggered interrupt mode must be set to one of the following values: 2(9), 3, 10, 12, 14, 15.
(This limitation has been solved).
- On the SNX 400, the names of the CBUS-II slots displayed during the POD are incorrect. Instead of reading 0, 6, 8, A(10), C(12), E(14), the following values must be read: 0, 2, 4, 6, 8, A(10).
- On the SNX 200/400/RM systems that use the Switch Box module to share a monitor and keyboard among several systems, when voltage drops occur the Switch Box resets itself with the consequent loss of the track-ball (mouse). This problem is solved by pressing, on the keyboard, the CTRL-R key sequence for each system that is being shared.
- On the SNX 200/400/RM systems that use the Switch Box module, at times the "ESC=FAST DIAGNOSTIC" function is not enabled during the POD of each system that shares a monitor and keyboard and therefore the memory test is performed in its entirety.
- On the SNX 200/400/RM systems that use the Switch Box module, it is suggested that the monitor and keyboard remain assigned to the system that is performing the POD at that moment. When moving from one system to the next, during the POD it is always not possible to return to the previous one. Therefore in the case of shared systems, one system needs to be powered on at a time so that the diagnostic phase of each system ends without the use of the keyboard.
- It is suggested that the GO2061 and GO2098 boards be installed sequentially in the PCI slots on the motherboard, without leaving free slots and without having a different board in between; any board installed between these boards must be removed.
- With a non-valid NVRAM, by default the Configurator sets the I/O resources of the PCI boards within the 5xxh range which is dedicated to the I/Os of the ISA boards. The I/O range needs to be changed to avoid conflicts with the ISA I/O area.
- The PCI-to-PCI bridge boards (such as the Z'nyx EPIX) are not supported in the current ECU 3.01 release.
- The PCI IRQs that are set and stored by the Configurator as "not shared" are changed to "shared" by the BIOS during the next POD.
- The CPU or CBUS2 resources are not declared within the 3 MB and 4 MB range. These will be added in future releases.
- Each time the system configuration changes by means of the Configuration Utility, all previous settings must be checked and re-entered if modified. This procedure must be followed since the current Configuration Utility version does not support the LOCK function on the resources of the boards configured (generating an error during the next POD).
- Configuring the system by means of the User Disk will assign to the Dagger and DPT controllers (if present) different option ROMs than those assigned by the Built-In ROM Setup.

- The mapping of a DPT board at I/O address 1C88 makes it impossible to configure the system by means of the User Disk.
- Mapping boards at the 15th MB on a 416 MB system causes Storage Manager failures.
- Installing an EISA board on the system prevents the use of the Built-In ROM Setup without warning the user. Similarly, the configuration bypass jumper has no effect.
- In order to disable the floppy boot, do not use the User Disk "Floppy Disable" option but the "Boot Sequence" option from the "Set System Security" menu.
- To avoid Storage Manager Utility malfunctions, the system resources that are automatically allocated for the motherboard (COM1/COM2, parallel port, floppy interface, keyboard/mouse interface) cannot be disabled with a 32 MB system memory.
- The "Extended memory above 64 MB Support" option must be enabled on systems with 64 MB of memory or above, while it is Disabled by default. This option can be enabled by means of the ROM Setup program or the Configurator.
- With the ASIC Bridge board, a software reset will cause the system to hang; to reboot, power the system off and then on again. This problem does not exist on Bridge boards with discrete components.
- There is no 128 KB gap between the 512 and 640 KB within Mega 0 of the system base memory. This prevents the DPM boards from being mapped in this area.

OPERATING SYSTEMS

- The system hangs when booting from floppy disk with the AT&T UNIX operating system, an active remote terminal and motherboard SVGA enabled. This is a problem with the operating system that, during system boot, gives priority to the video controller instead of to the remote terminal attached to the serial port.
- The SVGA mode does not work in the 800x600x256 colors and 1024x768x256 colors resolutions in the SCO ODT 3.0 environment.
- The OC 3135 board will not be available for the SNX 400 due to problems in the Win NT3.5 and UNIX SVR4 environments.
- Patch#5 V2.4.1 is required in order to be able to use the CDR 4S-500 under Unix SVR4 rel. 2.4.1.
- Interrupt IRQ10 is not available for the I/O boards when using the UnixWare 2.0 rel. 2.01 operating system. IRQ10 is used by the operating system as a resource dedicated to CBUS-II.
- With the Windows NT 3.5 operating system, there may be problems with the DPT engine on systems with 32 MB of memory, a PCI RAID SCSI controller and a high load of disks. Increase the amount of "NonPagedPool" reserved memory in the WIN NT register.
Register default value (0)

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\SessionManager\MemoryManagement\NonPagedPoolSize

must be changed to 2097152 (2 MB).

- With the UnixWare 2.0x with USF file system and Windows NT 3.5 and 3.51 operating systems, when there are disks with a capacity greater than 1 GB connected to the Dagger SCSI controller, use the Configurator to select the SCSI controller's "BIOS and Device Configuration" option and set the "Extended Translation for Drives > 1 GByte" parameter of the "BIOS Configuration" submenu to Disabled.

- With the SCO Unix 3.2.4.2 operating system and the PCI RAID SCSI controller in RAID1 (mirroring) configuration, the "SCSI Cmd Queuing" option of the board Configuration Utility must be Disabled. The configuration utility can be activated at the POD by pressing CTRL-D.
This limitation will be solved from the PCI RAID SCSI controller firmware release later than 6CX.
- With the OS2 2.11 operating system and the PCI RAID SCSI controller, proceed as follows to install the Supplemental Disk generated by the Storage Manager:
 - Open "OS/2 System Folder", then "System Setup Folder".
 - Select "Device Driver Install".
 - Insert the Supplemental Disk in the drive.
 - Select "Install". A status message is displayed upon completion of this command: an error is indicated if the controller is not found.

This limitation is currently solved.

- The following message may be displayed when using the UnixWare and SCO Open Server 5.0 operating systems and with a high disk load:

```
INTERNAL ERROR M=3D T=6
MESSAGE TIMEOUT M=3D T=6
ERROR: returned from Engine, Program Terminated!!.
```

Immediately perform the logging procedure by using the following command:
/usr/dpt/dptelog &.

- With the SCO Open Server 5.0 operating system it is not possible to configure two Dagger controllers together since the driver can only recognize one controller. The second Dagger controller can be updated successively once the singledagger is installed.
- IRQ 15 cannot be used for the RAID DPT Narrow and Wide controllers when using the NetWare 3.12 and 4.1 operating systems.
- With the NetWare 3.12 and 4.1 operating systems, using a workstation in a VLM connection (instead of NETX) and with a high stress on the I/O subsystem (during the RAID reconstruction phase), may cause one or more workstations to hang. When this happens the workstation must be rebooted. This problem is solved by correctly setting the client configuration when using the VLM connection mode.
- When using the RAID DPT Narrow or Wide controllers connected to hard disks with capacities greater than 1 GB with the UnixWare 2.0x operating system, there may be problems in the reconstruction of the UFS file system. When this happens, use the VXFS file system.
- With the Windows NT 3.51 operating system, the messages ERROR 9 and/or ERROR 11 may be displayed in the Event Viewer. These errors do not affect system operation and must therefore be ignored.
- With the Windows NT 3.51 operating system, the DPTSRV function must be deactivated and then reactivated following a logoff and successive logon.
- The FAT system file must be used instead of an HPFS with the OS/2 2.11 or OS/2 3.0 (WARP) operating system.
- To configure the Sony CDU76S (4X) CD-ROM with the OS/2 2.11 or OS/2 3.0 (WARP) operating system, select:
SONY CDU 541, 561, 6211, 7211, 7811 in the "CD ROM DEVICE SUPPORT" window.

- With the NetWare 3.12 or 4.1 operating system, the following random message which must be ignored may be displayed during a bootstrap with the CD-ROM connected to a RAID DPT PCI SCSI controller:

WARNING: SCSI BIOS ROM Version is later than this driver version. Drive not installed.

The CD-ROM will work correctly.

