

## M380/XP4 - M380/XP7 - M380/XP9

### CHARACTERISTICS

Microprocessor	80386
Clock	M380/XP4            25 MHz M380/XP7            25 MHz M380/XP9            33 MHz
Architecture	AT/XT
Memory	These three systems have 4 MB on system board which can be expanded to 8 MB via: <b>EXM 25-885</b> - 4 SIMM 1 Mb x 9 100 ns Memory can be furtherly expanded via memory board <b>MEM 25-886</b> - 4 MB SIMM 1 Mb x 9
Memory access	100 ns
Cache memory	32 KB
Cache controller	82385
Coprocessor	Intel 80387 / Weitek 3167
Floppy Disk	1.2 MB 5.25" Panasonic JU 475-3 1.2 MB 5.25" Toshiba ND 08 DE 1.44 MB 3.5" Panasonic J-257 1.44 MB 3.5" Sony MP-F17 1.44 MB Mitsubishi MF355C
Hard Disk	NEC D5655 135 MM ESDI Micropolis 1654-7 136 M ESDI Micropolis 1355 135 MM ESDI Micropolis 1558 300 MB ESDI MAXTOR 8760 600 MB ESDI SEAGATE WREN V 304 MB ESDI SEAGATE ST2182E 136 MB ESDI SEAGATE ST2383 320 MB ESDI
Streaming Tape	40 MB IRWIN 245 - only XP4 80 MB IRWIN 285 150 MB WANGTEK with controller
AT Expansion slots	XP4            7 Present    5 Available XP7/XP9 10 Present    7 Available
Video Adapter	<b>GO470</b> VGA compatible <b>GO481</b> VGA compatible <b>HGC 1281</b> MATROX installation kit
Hard Disk Floppy Disk Controller	<b>GO733</b> (WD1007A-WA2) ESDI 1:1 <b>GO535</b> (WD1007V-SE2) ESDI 1:1 <b>GO565</b> (only for XP9)
CMOS RAM	64 Byte
ROM BIOS	128 KB
Mouse	PS/2 and AT Compatible GRD 25-025
Keyboard	101/102-key ANK26-101 ANK26-102 <b>NOTE:</b> An ANK 25-102 keyboard with adapter cable may be used.

#### SYSTEM BOARD

XP4: BA842  
BA829  
XP7: BA842  
BA829  
BA825  
XP9: BA832  
BA833  
BA839

#### BUS ADAPTER BOARD

XP4: IF624 ( 7 slots)  
XP7: IF617 (10 slots)

#### U-TURN BOARD

XP4: IF614  
XP7: IF618  
XP9: IF618

#### POWER SUPPLY

XP4: LA21C  
XP7: PS30 A or PS30/B1  
XP9: PS30 A  
PS30 B or PS30/B1

#### CONSOLE CONTROLLER

XP7 IF621    Lev.03  
XP9 IF621    Lev.03

#### CONSOLE

XP7 MI514  
XP9 MI514

#### MEMORY EXPANSION

ME-931 **MEM 25-886**  
from 4 to 16 MB with  
SIMM modules of  
(1 MB x 9)

#### STREAMING TAPE CONTROLLER

GO725

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**SYSTEM BOARD**

	LEVEL	D.R.S. CODE	ROM BIOS	NOTES
<b>BA829</b>	Nasc.	412589 N	<b>ROM H:</b> PBU5 Rev. 1.05 <b>ROM L:</b> PBU4 Rev. 1.05	System board <b>M380/XP4</b> and <b>M380/XP7</b> Supports from 4 MB to 8 MB and 32 KB of SRAM memory
	Lev. 01		Rev. 1.05	Corrects the problem with random resets occurring when a streaming tape drive is installed.
	Lev. 02		Rev. 1.05	Retrofitting kit to fix problems of incompatibility with intelligent multiport boards. After modification, boards pass to level: NA/A, 01/A, 03/A.
	Lev. 03		<b>ROM H:</b> PBZ1 Rev. 1.07 <b>ROM L:</b> PBZ0 Rev. 1.07	Permits use of multiport boards: <ul style="list-style-type: none"> <li>- Mapped between 512 and 640 KB</li> <li>- Liable to problems from IOCHRDY signal</li> <li>- Using interrupt 12</li> <li>- Using memory between 12 and 16 MB</li> <li>- Requiring CMOS input on BIRQ signals for interrupt handling</li> </ul>
	Lev. 04		Rev. 1.07	Cuts and wirings performed at the Subsidiary to correct: <ul style="list-style-type: none"> <li>- Real time clock problems on startup circuit</li> <li>- Timing problems during DMA cycles</li> </ul>
	Lev. 05		Rev. 1.07	Solved Panic Error problem in UNIX enviroment. Replaced component 74F373 with 2 74AS373
	Lev. 06		Rev. 1.07	Replacement of microprocessor I80386 step D0 with microprocessor I80386 step D1
	Lev. 07		Rev. 1.07	Components replaced to correct the problems given by the multiport board.

	LEVEL	D.R.S. CODE	ROM BIOS	NOTES
<b>BA825</b>	Nasc.	412565 M	<b>ROM H:</b> PBU5 Rev. 1.05 <b>ROM L:</b> PBU4 Rev. 1.05	System board <b>M380/XP7</b> Supports from 4 MB to 8 MB and 32 KB of SRAM
	Lev. 01		Rev. 1.05	Component 82835/25/B replaced by component 82835/25/C
	Lev. 02		Rev. 1.05	Corrects the problem of random resets occurring when a streaming tape drive is installed in the system.
	Lev. 03		<b>ROM H:</b> PBZ1 Rev. 1.07 <b>ROM L:</b> PBZ0 Rev. 1.07	PAL in position U116 replaced
	Lev. 04		Rev. 1.07	Made changes not implemented by factory. See CDM code 3877537 M 504
	Lev. 05		Rev. 1.07	Corrects the problems with the refresh.
	Lev. 06		Rev. 1.07	Cutting and trimming done by Subsidiary laboratories to eliminate: - Real time clock problems on startup circuit - Timing problems during DMA cycles
	Lev. 07		Rev. 1.07	Level existing for field only, not implemented by factory. Replacement of component 74F373 with 2 74AS373
	Lev. 08		Rev. 1.07	Replacement of microprocessor I80386 step D0 with microprocessor I80386 step D1
	Lev. 09		Rev. 1.07	Components replaced to correct the problems given by the multiport board.

	LEVEL	D.R.S. CODE	ROM BIOS	NOTES	
BA832	Nasc.	412816S	<b>ROM H:</b> PBZ1 <b>ROM L:</b> PBZ0 Rev. 1.07	<b>M380/XP9</b> motherboard	
	Lev. 01			Code added for H template of 82C206 component	
	Lev. 02			Cutting and trimming to eliminate: - Real time clock problems on startup circuit - Timing problems during DMA cycles	
	Lev. 03			<b>From this level on, changes are no longer implemented by factory but are run by field engineers.</b> Solved Panic Error problem in UNIX environment. Replaced component 74F373 with 2 74AS373	
	Lev. 04			<b>ROM H:</b> PBZP <b>ROM L:</b> PBZQ Rev. 2.02	Replacement of BIOS and components to solve "Panic Error" problem in UNIX environment
	Lev. 05				Replacement of a GAL code 497585 G with code 978257 P (GLZ6)
	Lev. 06				Solves the problem of system random locks when running 16-bit BUS cycles.
	Lev. 07				Replacement of component PLS168-33 code 497051 K in U90 with PLAZ (ULC 24-PLS168) code 4897070 D gate array that has larger margins during setup time.
	Lev. 08				Replacement of keyboard controller 8.00 with version 8.01 for problems with software packages such as Lotus, OS/2 in network server mode.
	Lev. 08				The 33 MHz "step E" CPU 80386DX is introduced as an alternative to the 33 MHz "step 1" CPU 80386DX. Board level does not change.

	LEVEL	D.R.S. CODE	ROM BIOS	NOTES
<b>BA833</b>	Nasc.	412665 Z	<b>ROM H:</b> PBZ1 <b>ROM L:</b> PBZ0 Rev. 1.07	<b>M380/XP9</b> motherboard
	Lev. 01		Rev. 1.07	Solves the random reset problem when a streaming tape is installed.
	Lev. 01.1			
	Lev. 02		Rev. 1.07	Solves the benchmark problems
	Lev. 03		Rev. 1.07	Solves the serial port problems
	Lev. 04		Rev. 1.07	Solves the memory refresh problems
	Lev. 05		Rev. 1.07	<b>From this level on, changes are no longer implemented by factory but are run by field engineers.</b> Cutting and trimming to eliminate: - Real time clock problems on start up circuit - Timing problems during DMA cycles
	Lev. 06		Rev. 1.07	Replacement of component 74F373 with 2 74AS373
	Lev. 07		<b>ROM H:</b> PBZP <b>ROM L:</b> PBZQ Rev. 2.02	Replacement of the BIOS
	Lev. 08		Rev. 2.02	Replacement of a GAL code 497585 G with code 978257 P (GLZ6)
	Lev. 09		Rev. 2.02	Solves the problem of system random locks when running 16-bit BUS cycles.
	Lev. 10		Rev. 2.02	Replacement of component PLS168-33 code 497051 K in U90 with PLAZ (ULC 24-PLS168) code 4897070 D gate array which has larger margins during setup time.
Lev. 11		Rev. 2.02	- Replacement of keyboard controller 8.00 with version 8.01 for problems with software packages such as Lotus, OS/2 in network server mode.  - The 33 MHz "step E" CPU 80386DX is introduced as an alternative to the 33 MHz "step 1" CPU 80386DX. Board level does not change.	

	LEVEL	D.R.S. CODE	ROM BIOS	NOTES
<b>BA839</b>	Nasc.		<b>ROM H:</b> PBZH1 <b>ROM L:</b> PBZ0 Rev. 1.07	<b>M380/XP9</b> motherboard
	Lev. 01		<b>ROM H:</b> PBZP <b>ROM L:</b> PBZQ Rev. 2.02	New BIOS for 600 MB hard disk management. Use user diskette 2.01 upd 2 Use hard disk controller GO535 Two BUILT in SETUP hard disks can be preset. Solves the "lock" message problem of console key.
	Lev. 02		Rev. 2.02	Replacement of a GAL code 497585 G with code 978257 P (GLZ6)
	Lev. 03		Rev. 2.02	Solves the problem of system random locks when running 16-bit BUS cycles.
	Lev. 04		Rev. 2.02	Replacement of component PLS168-33 code 497051 K in U90 with PLAZ (ULC 24-PLS168) code 4897070 D gate array that has larger margins during setup time.
	Lev. 05		Rev. 2.02	<ul style="list-style-type: none"> <li>- Replacement of keyboard controller 8.00 with version 8.01 for problems with software packages such as Lotus, OS/2 in network server mode.</li> <li>- The 33 MHz "step E" CPU 80386DX is introduced as an alternative to the 33 MHz "step 1" CPU 80386DX. Board level does not change.</li> </ul>

**HARD DISK AND FLOPPY DISK CONTROLLERS**

CONTROLLER	CHARACTERISTICS	LEV.	NOTES
<b>GO733</b> (M380/XP4) (M380/XP7)	WD1007A-WA2) ESDI 1:1 Supports a 20 ms transfer rate	Nasc Lev. 01 Lev. 02 Lev. 03 Lev. 04	Oscillator replaced Printed circuit modified Nuovo step del component New step for component 50C12A New step for component WD3675
<b>GO535</b> (M380/XP9)	WD1007V-SE2 ESDI 1:1 Supports transfer rates of lower than 20 ms and is used to control the 600 MB hard disk on XP9 and SEAGATE hard disks with transfer rates of less than 20 ms	Nasc Lev. 01 Lev. 02	New step for component WD3765 Enhanced board quality
<b>GO565</b> (M380/XP9)	Replaces the GO535 controller		

INTEGRATED CONTROLLERS	INTEGRATED CONTROLLERS
<b>80386</b> CPU <b>80387</b> Coprocessor <b>Weitek WLT 3126</b> Coprocessor <b>82385</b> Cache controller	<b>82C206</b> Peripherals controller <b>8742</b> Keyboard and mouse controller <b>UART 16550</b> Serial port

**ROM BIOS AND PAL EVOLUTION**

FUNCTION		POS.	EVOLUTION OF M380/XP4 - XP7 BA829 BOARD			
ROM BIOS	H / L	U127 U126	REV. 1.05	REV. 1.07	REV. 2.02 **	
DRAM DECOD	MEM DEC	U123	PLFP/PLHF	PLEK/PLJ4		
I/O DECOD	LIO DEC	U94	PLCK/PLGC			
ALT I/O DECOD	ALT DEC	U145	PLFR/PLHK			
TIMER	TIMCLK	U143	PLFD/PLGF	PLJO/PLHY		
ARBITER	ARBCTL	U30	PLGG	PLJ3		
REFRESH	REFCTL	U21	PLFE/PLHD	PLET/PLJZ		
STROBE	LIOSTB	U18	PLCP/PLGJ			
BUFFERS BUS	BUFCNV	U87	PLFC/PLHC			
LATCHES BUS	LADCNV	U75	PLXS/PLGL			
DRAM	MEMSEL	U131	PLCW/PLGM			
DRAM	DBUFEN	U130	PLXU/PLGN			
DRAM	PCHKEN	U150	PLFU/PLHM			
NMI INT	RDYNMI	U105	PLCY/PLGQ			
RAM-CAS	CASCTL	U129	PLFS/PLHJ			
DRAM-RAS	RASCTL	U148	PLCX/PLGS			
BUS	CMDCNT	U59	PLCC/PLGT			
PARALLEL	SPPCNT	U71	PLCD/PLGU	PLDP/PLHX		
PERIPHERAL	DPGSEL	U41	PLCV/PLXV			
COPROC.	NPXCTL2	U92	PLCT			
PASSWORD	PWPRO	U104	PLHH	PLHU		
BUS	BUSCTL16	U40	PBVE			
BUS	BUSCTL25	U90	PLBH			
PROCESSOR	NCACTL	U116	PLFT/PLHL	PLBL/PLHT	PLJW/PLJY	
COPROC.	NPXCTL1	U19	PLFH		**	
KBC 8742		U27	CSLB			
CTRL RAM		U99	CS2V(C)			
CACHE 82385						

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\*\* Only for field level.

FUNCTION		POS.	EVOLUTION OF M380/ XP7 BA825 BOARD		
ROM BIOS	H / L	U127 U126	REV. 1.05	REV. 1.07	
DRAM DECOD	MEM DEC	U123	PLFP/PLHF		
I/O DECOD	LIO DEC	U94	PLCK/PLGC		
ALT I/O DECOD	ALT DEC	U145	PLFR/PLHK		
TIMER	TIMCLK	U143	PLFD/PLGF		
ARBITER	ARBCTL	U30	PLGG	PLJ3 **	
REFRESH	REFCTL	U21	PLFE/PLHD	PLET/PLJZ	
STROBE	LIOSTB	U18	PLCP/PLGJ		
BUFFERS BUS	BUFCNV	U87	PLFC/PLHC		
LATCHES BUS	LADCNV	U75	PLXS/PLGL		
DRAM	MEMSEL	U131	PLCW/PLGM		
DRAM	DBUFEN	U130	PLXU/PLGN		
DRAM	PCHKEN	U150	PLFU/PLHM		
NMI INT	RDYNMI	U105	PLCY/PLGQ		
RAM-CAS	CASCTL	U129	PLFS/PLHJ		
DRAM-RAS	RASCTL	U148	PLCX/PLGS		
BUS	CMDCNT	U59	PLCC/PLGT		
PARALLEL	SPPCNT	U71	PLCD/PLGU	PLDP/PLHX **	
PERIPHERAL	DPGSEL	U41	PLCV/PLXV		
COPROC.	NPXCTL2	U92	PLCT		
PASSWORD	PWPRO	U104	PLHH	PLHU	
BUS	BUSCTL16	U40	PBVE		
BUS	BUSCTL25	U90	PLCS	PLCZ	PLBH
PROCESSOR	NCACTL	U116	PLFT/PLHL	PLBL/PLHT	PLJW/PLJY **
COPROC.	NPXCTL1	U19	PLFH		
KBC 8742		U27	CSLB		
CTRL RAM		U99	CS2V(B)	CS2V(B)	
CACHE 82385					

\*\* Only for field level.



FUNCTION		POS.	EVOLUTION OF M380/ XP9 BA832 BOARD		
ROM BIOS	H / L	U127 U126	REV. 1.07	REV. 2.02 **	
DRAM DECOD	MEM DEC	U123	PLFP/PLHF	PLEK/PLJ4	
I/O DECOD	LIO DEC	U94	PLCK/PLGC		
ALT I/O DECOD	ALT DEC	U145	PLFR/PLHK		
TIMER	TIMCLK	U143	PLJO/PLHY		
ARBITER	ARBCTL	U30	PLJ3		
REFRESH	REFCTL	U21	PLFE/PLHD	PLET/PLJZ	
STROBE	LIOSTB	U18	PLCP/PLGJ		
BUFFERS BUS	BUFCNV	U87	PLFC/PLHC		
LATCHES BUS	LADCNV	U75	PLXS/PLGL		
DRAM	MEMSEL	U131	PLCW/PLGM		
DRAM	DBUFEN	U130	PLXU/PLGN		
DRAM	PCHKEN	U150	PLFU/PLHM		
NMI INT	RDYNMI	U105	PLCY/PLGQ		
RAM-CAS	CASCTL	U129	PLFS/PLHJ		
DRAM-RAS	RASCTL	U148	PLCX/PLGS		
BUS	CMDCNT	U59	PLCC/PLGT		
PARALLEL	SPPCNT	U71	PLDP/PLHX		
PERIPHERAL	DPGSEL	U41	PLCV/PLXV		
COPROC.	NPXCTL2	U92	PLBN		
PASSWORD	PWPRO	U104	PLHH	GLZ6 **	
BUS	BUSCTL16	U40	PBVE		
BUS	BUSCTL33	U90	PLBK	PLAZ **	
PROCESSOR	NCACTL	U116	PLJ1/PLJ2		
COPROC.	NPXCTL1	U19	PLBM		
KBC 8742		U27	CSLB		
CTRL RAM		U99	CS2V(C)		
CACHE 82385					

\*\* Only for field level.

FUNCTION		POS.	EVOLUTION OF M380/ XP9 BA833 BOARD		
ROM BIOS	H / L	U127 U126	REV. 1.07	REV. 2.02 **	
DRAM DECOD	MEM DEC	U123	PLFP/PLHF		
I/O DECOD	LIO DEC	U94	PLCK/PLGC		
ALT I/O DECOD	ALT DEC	U145	PLFR/PLHK		
TIMER	TIMCLK	U143	PLJO/PLHY		
ARBITER	ARBCTL	U30	PLGG	PLJ3	
REFRESH	REFCTL	U21	PLFE/PLHD	PLET/PLJZ	
STROBE	LIOSTB	U18	PLCP/PLGJ		
BUFFERS BUS	BUFCNV	U87	PLFC/PLHC		
LATCHES BUS	LADCNV	U75	PLXS/PLGL		
DRAM	MEMSEL	U131	PLCW/PLGM		
DRAM	DBUFEN	U130	PLXU/PLGN		
DRAM	PCHKEN	U150	PLFU/PLHM		
NMI INT	RDYNMI	U105	PLCY/PLGQ		
RAM-CAS	CASCTL	U129	PLFS/PLHJ		
DRAM-RAS	RASCTL	U148	PLCX/PLGS		
BUS	CMDCNT	U59	PLCC/PLGT		
PARALLEL	SPPCNT	U71	PLCD/PLGU	PLDP/PLHX	
PERIPHERAL	DPGSEL	U41	PLCV/PLXV		
COPROC.	NPXCTL2	U92	PLBN		
PASSWORD	PWPRO	U104	PLHU	PLHH	GLZ6 **
BUS	BUSCTL16	U40	PBVE		
BUS	BUSCTL33	U90	PLBQ	PLBK	PLAZ **
PROCESSOR	NCACTL	U116	PLBJ	PLBP	PLJW/PLJY **
COPROC.	NPXCTL1	U19	PLBM		
KBC 8742		U27	CSLB		
CTRL RAM		U99	CS2V(B)	CS2V(C)	
CACHE 82385					

\*\* Only for field level.

FUNCTION		POS.	EVOLUTION OF M380/XP9 BA839 BOARD		
ROM BIOS	H / L	U127 U126	REV. 1.07	REV. 2.02	
DRAM DECOD	MEM DEC	U123	PLEK/PLJ4		
I/O DECOD	LIO DEC	U94	PLCK/PLGC		
ALT I/O DECOD	ALT DEC	U145	PLFR/PLHK		
TIMER	TIMCLK	U143	PLEN/PLJ7		
ARBITER	ARBCTL	U30	PLJ3		
REFRESH	REFCTL	U21	PLET/PLJZ		
STROBE	LIOSTB	U18	PLCP/PLGJ		
BUFFERS BUS	BUFCNV	U87	PLFC/PLHC		
LATCHES BUS	LADCNV	U75	PLXS/PLGL		
DRAM	MEMSEL	U131	PLCW/PLGM		
DRAM	DBUFEN	U130	PLXU/PLGN		
DRAM	PCHKEN	U150	PLFU/PLHM		
NMI INT	RDYNMI	U105	PLCY/PLGQ		
RAM-CAS	CASCTL	U129	PLFS/PLHJ		
DRAM-RAS	RASCTL	U148	PLCX/PLGS		
BUS	CMDCNT	U59	PLCC/PLGT		
PARALLEL	SPPCNT	U71	PLDP/PLHX		
PERIPHERAL	DPGSEL	U41	PLCV/PLXV		
COPROC.	NPXCTL2	U92	PLBN		
PASSWORD	PWPRO	U104	PLHH	GLZ6	
BUS	BUSCTL16	U40	PBVE		
BUS	BUSCTL33	U90	PLBK	PLAZ	
PROCESSOR	NCACTL	U116	PLJ2/PLJ1		
COPROC.	NPXCTL1	U19	PLBM		
KBC 8742		U27	CSLB		
CTRL RAM		U99	CS2V(B)		
CACHE 82385					

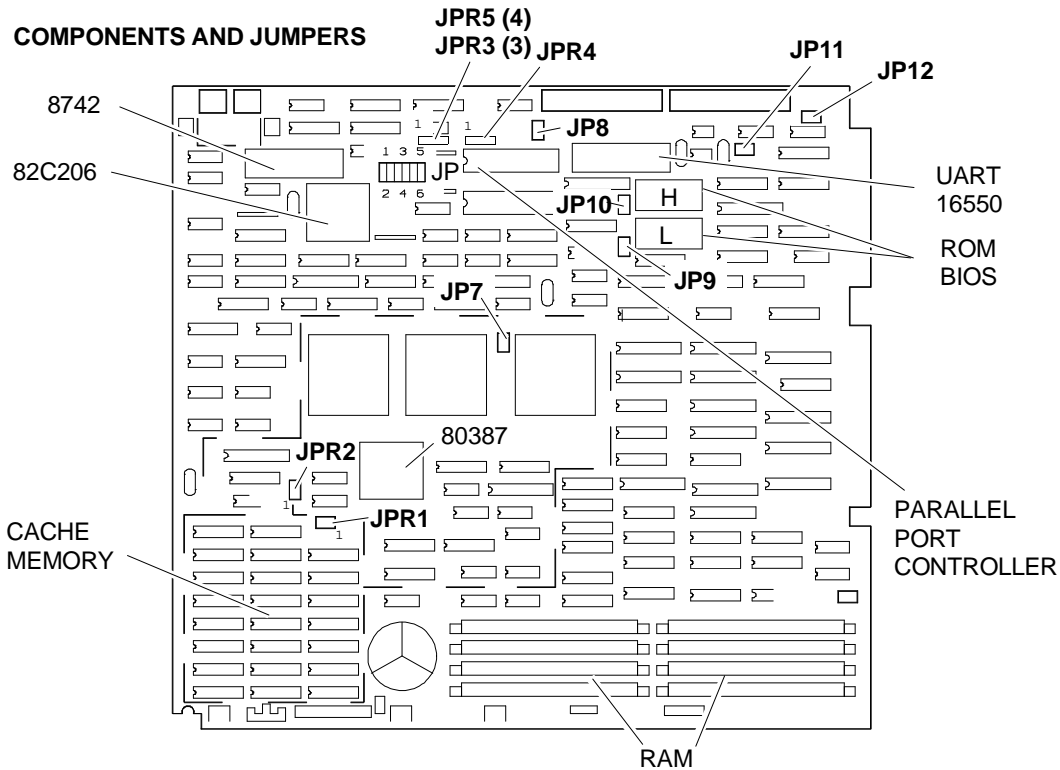
**BOARDS**

FUNCTION	DESCRIPTION	D.R.S. CODE	CHARACTERISTICS
CPU motherboard	BA839		M380/XP9 33 MHz
CPU motherboard	BA832	412816 S	M380/XP9 33 MHz
CPU motherboard	BA829	412589 N	M380/XP4/XP7 25 MHz
CPU motherboard	BA825	412565 M	M380/XP7 25 MHz
CPU motherboard	BA833	412665 Z	M380/XP9 33 MHz
Adapter BUS board	IF615	411868 U	M380/XP4
	IF624	412534 E	M380/XP4
Adapter BUS board	IF617	412143 N	M380/XP7/XP9
U-TURN board	IF614	497576 N	M380/XP4
U-TURN board	IF618	497622 L	M380/XP7/XP9
220 V power supply	LA21/C	411771 S	M380/XP4
110 V power supply	LA21/C	411770 D	M380/XP4
220 V power supply	PS30A-PS30B	412165 L	M380/XP7/XP9
110 V power supply	PS30A-PS30B	412164 K	M380/XP7/XP9
Hard disk controller	GO733	412566 N	M380/XP4/XP7
Hard disk controller	GO535		M380/XP9
Hard disk controller	GO565		M380/XP9
Video controller	GO481	412444 L	Analog video controller
Memory expansion board	ME931		M380/XP4/XP7
Console interface board	IF621		M380/XP7/XP9
Console	MI525		M380/XP7/XP9

**COMPATIBILITY NOTES**

BOARD OR HW/SW DEVICE	DESCRIPTION	SYSTEM BOARD
DEME (position U162)	Solves: - Parity error problems - Replaces delay line 4	BA825
PLHT/BL (position U116)	Solves: - Flight simulator incompatibility	BA825-29
PLHU (position U104) PLBH (position U90)	Solves: - Wangtek streaming tape unit problems	BA825-29
PLBP (position U116) PLHH (position U104)	Improves system timing and benchmarks	BA829-25
PLBK (position U90)	Solves: - Wangtek streaming tape unit problems	BA833-39 BA832
PLHX/PLDP (position U71)	Solves: - System board serial port management problems	BA833-39 BA832
PLJ3 (position U30)	Solves: - Management Enlargement BUS errors	BA829-25 BA832-33 BA829
PLJZ/PLET (position U121)	Solves system blocks with the Banyan Multiport ICA Operating System	BA839-33 BA832-25 BA829
PLJ4 (position U123)	Solves system blocks when using 512 - 640 KB memory paging	BA829-32 BA839

BOARD OR HW/SW DEVICE	DESCRIPTION	MOTHER-BOARD
PLJY (position U116) PLJ4 (position U123) PLHY (position U143)	Solves: <ul style="list-style-type: none"> <li>- RAM management problems of CACHE in the presence of a Multiport board</li> <li>- Memory problems when using 512 - 640 KB paging</li> <li>- Interrupt 12 management</li> </ul>	BA839-25 BA833-32 BA829
Power supply PS30/B1	Power supply unit used to conform with Northern Countries safety rules (see CP486, P800)	
Hard disk and floppy disk controller board	Replaced component, for factory change, but same performance	
Hard disk controller board	M380/XP9 no longer uses hard disk controller board GO733 which is replaced by GO535 for each configuration	
Peripherals controller C&T 82C206	In alternative to this C&T, TEXAS 82C206 component can be used	BA839-25 BA833-32
Hard disk SEAGATE ST2182E 136 SEAGATE ST2383E 320	These hard disks work with controller WD1007 SE2 (GO535) only. Therefore, upgrading KIT is still produced for the old NEC and MICROPOLIS hard disks. They operate with both <b>GO535</b> and <b>GO733</b> controllers	
BIOS 2.01	This BIOS is only distributed by OLISERVICE and has never been discontinued	
Power supply LA21/C	Inductor I129 has been replaced to solve component overheating problems. Field change only	
Hard disk controller GO535	Modifications made to the printed circuit board in order to improve the quality of the board. The level of this board changes to 02. The original and level 01 GO535 boards cannot be updated to level 02. To low level format the NEC D5655 hard disk when the GO535 level 02 board is installed, LLF release 2.06 is needed. The LLF program on the System Test diskette does not ensure correct hard disk formatting	
Hard disk controller	The GO535 is replaced by GO565	



JPR1		JPR2		82385 CLOCK
1 - 2	2 - 3	1 - 2	2 - 3	
ON	OFF	OFF	ON	25 MHz
OFF	ON	ON	OFF	33 MHz

JP <sub>6</sub>	COPROCESSOR CLOCK
ON	External clock
OFF	System clock (normal)

JP <sub>5</sub>	SYSTEM BOARD RAM ENABLE
ON	Enabled (normal)
OFF	Not enabled

JP <sub>7</sub>	80386 OPERATING MODE
ON	Pipeline
OFF	Non-Pipeline (normal)

JP <sub>11</sub>	JP <sub>12</sub>	RS232 COMPAT.
OFF	OFF	COMPAQ (normal)
ON	ON	IBM

JP <sub>9</sub>	JP <sub>10</sub>	EPROM CAPACITY
ON	OFF	256 KB (normal)
OFF	ON	512 KB

JP <sub>8</sub>	SERIAL PORT CLOCK
ON	System clock (normal)
OFF	External clock

JP <sub>1</sub>	JP <sub>2</sub>	FUNCTION
ON	ON	16 or 20 MHz (not used)
OFF	ON	25 MHz (not used)
ON	OFF	33 MHz
OFF	OFF	40 MHz (not used)

JP <sub>3</sub>	JP <sub>4</sub>	SYSTEM BOARD MEMORY		
		Bank	SIMM type	Size
ON	ON	0	1 MB x 9	4 MB(1)
OFF	ON	0 and 1	1 MB x 9	8 MB
ON	OFF	0	4 MB x 9	16 MB
OFF	OFF	0 and 1	4 MB x 9	32 MB

JPR4		RAM from 12 MB to 16 MB
1 - 2	2 - 3	
OFF	ON	Enabled as a cache (1)
ON	OFF	Managed by I/O controller
OFF	OFF	Disabled

JPR3/JPR5		IRQ 12 MOUSE
1 - 2	2 - 3	
OFF	ON	Enabled for the mouse (1)
ON	OFF	I/O Disabled / Enabled
OFF	OFF	Mouse must not be connected

- (1) Default setting
- (2) Not present on BA839
- (3) Present on BA832 and BA839 only
- (4) Present on BA829 only

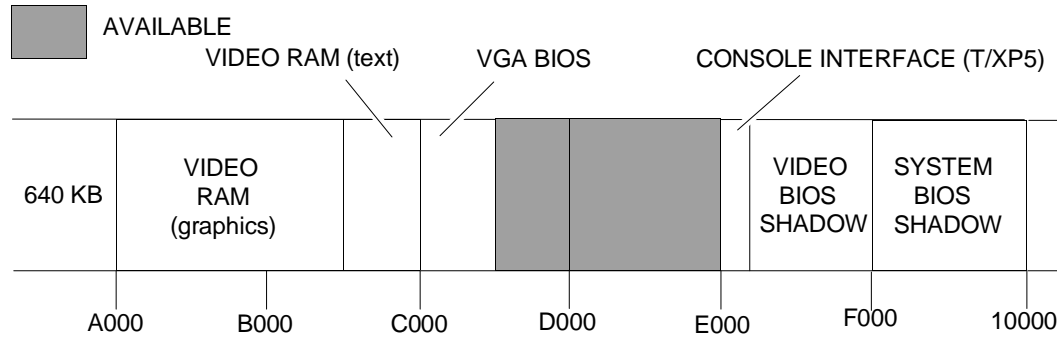
**SOFTWARE COMPATIBILITY**

<b>OPERATING SYSTEMS</b>	<b>NOTES</b>
IBM DISK Operating System, Ver. 3.30 IBM DISK Operating System, Ver. 4.00	Requires formatted DSDD diskette during installation on hard disk PS/2 type mouse not recognised
IBM Operating System/2, Ver. 1.10	
IBM Operating System/2 Extended Edition, Ver. 1.10	PS/2 type mouse not recognised
AT&T UNIX System V/386 Version 3.2 Rev.2.0 SCO XENIX 386, Rev. 2.3.1	

**HARDWARE COMPATIBILITY**

<b>MODEMS</b>	<b>I/O INTERFACE PRODUCTS</b>
Hayes Smartmodem 1200B Hayes Smartmodem 2400B Quadram Quadmodem II QM2024 Telenetics Expressdata 24i 24i - 12i VEN-TEI PC modem Half Card PCM-XT Hayes Smartmodem 1200	IBM Async. communication card 1502074 IBM mono display / printer adapter 1504900 IBM printer adapter 1505200 IBM Serial / Parallel card 6450215 National IEEE-488 card GPIB-PC. Rev.A
<b>MEMORY EXPANSIONS</b>	<b>MOUSE</b>
AST Rampage 286 RAMP286 AST Rampage/AT RAMPAT 2000 AST ADVANTAGE ! ADV 128S BOCARAM / AT EVEREX RAM 2000 EV 171 IBM 512KB EXP. MEMORY OPT. 6450203 IBM 512KB/2MB EXP. MEMORY OPT. 6450343 IBM Enhanced Memory Exp. Adap. 74X8635 INTEL Aboveboard / AT PCMB2010 INTEL Aboveboard / 286 PCMB4020	IBM PS/2 Mouse (6450350) Logitech BUS mouse P7-3F Microsoft BUS Mouse rev.C Microsoft Serial Mouse MSC PC Mouse PS/2 Mouse Systems PC mouse M1
<b>DISPLAY UNITS</b>	<b>NETWORKING &amp; LAN PRODUCTS</b>
IBM color graphics monitor 5153 IBM enhanced color graphics monitor 5154 IBM monochrome monitor 5151 IBM PS/2 Color Display 8512 IBM PS/2 Color Display 8514 JVC Quad-sync color monitor GD-H6116VFW NEC multisync monitor APC-H431 Princeton RGB monitor HX-12	AT&T Starlan Network IBM PC Network IBM Token Ring Network Madge AT Ring node Token ring Madge PC Ring node Token ring Novell Advanced netware ver. 2.12 3COM Network (Ethernet) 10NET Network
<b>GRAPHICS PRODUCTS</b>	
AST research AST-3G plus ATI EGA WONDER Genoa Super EGA Hires Hercules color card GB200 Hercules graphics card GB102 IBM Color graphics adapter 5153001	IBM Enhanced graphics adapter 5154001 IBM VGA adapter Paradise EGA 480 Quadram quad EGA Plus QC8601 Video-7 VEGA deluxe

**SYSTEM MEMORY MAP**



ADDRESS	BITS	TYPE	FUNCTION
FFFFFFFF - FFFE0000	16	NCA	128 KB system ROM
FFFE0000 - E0000000	16	NCA	Reserved
E0000000 - D0000000	32	NCA	Reserved
D0000000 - C0000000	32	NCA	Weitek Coprocessor
C0000000 - A0000000	32	CA	Reserved
A0000000 - 80000000	34	CA	Image system RAM
80000000 - 20000000	32	CA	Reserved
20000000 - 01000000	32	CA	System RAM
01000000 - 00100000	32/16	CA/NCA	System RAM
00100000 - 000E0000	32/16	CA/NCA	SHADOW RAM
000E0000 - 000C0000	16	NCA	I/O Expansion ROM
000C0000 - 000A0000	16	NCA	Video RAM
000A0000 - 00080000	32/16	CA/NCA	I/O Expansion RAM
00080000 - 00000000	32/16	CA/NCA	System RAM

**DMA CHANNELS**

CHANNEL	FUNCTION
DRQ 0	Reserved
DRQ 1	Reserved
DRQ 2	Floppy disk
DRQ 3	Reserved
DRQ 4	Reserved
DRQ 5	EXP. SLOT
DRQ 6	EXP. SLOT
DRQ 7	EXP. SLOT

**INTERRUPT LEVELS**

LEV.	FUNCTION	LEV.	FUNCTION
RQ0	Timer channel 0	RQ8	Real Time Clock
IRQ1	Keyboard interface	IRQ9*	Reserved
IRQ2	Interrupt from PIC2	IRQ10	Available
IRQ3	Serial port 2	IRQ11	Available
IRQ4	Serial port 1	IRQ12	Mouse
IRQ5	Parallel port 2	IRQ13	Coprocessor
IRQ6	Floppy disk controller	IRQ14	Hard disk CTRL
IRQ7	Parallel port 1	IRQ15	Available

\* Redirected via software to IRQ2



**I/O ADDRESS MAP**

ADDRESS	FUNCTION (INTERNAL)	ADDRESS	FUNCTION (EXTERNAL)
F8-FF	Coprocessor	3F0-3FF	Floppy disk
F0	Clear processor	3D0-3DF	Graphic color video
C0-DF	DMA 2	3C0-3CF	Reserved
A0-BF	Interrupt controller 2	3B0-3BF	B/W display
80-9F	DMA registers	3A0-3AF	SDLC 1
70-7F	Real Time Clock	380-38F	SDLC 2
60-6F	Keyboard controller	378-37F	Parallel port 1
40-5F	Timer	360-36F	Reserved
20-3F	Interrupt controller 1	300-31F	External boards
0-1F	DMA 1	2F8-2FF	Serial port 2
3F8-3FF	Serial port 1	278-27F	Parallel port 2

**SETUP**

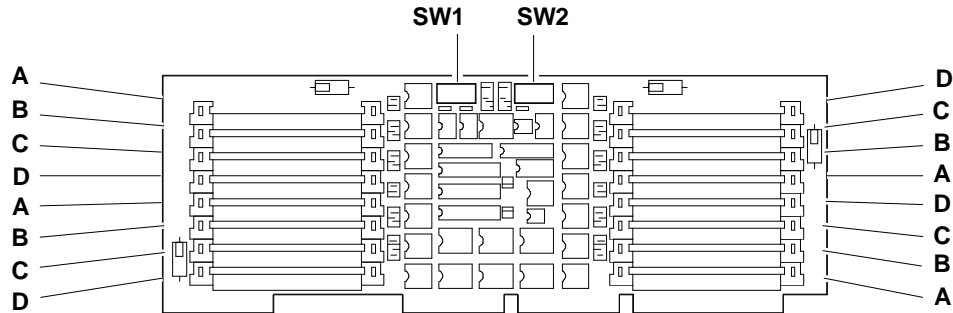
PAGE 1		PAGE 2	
1 Date	7 Hard disk C	1 System board serial port	5 Scrolling type
2 Time	8 Hard disk D	2 System board parallel port	6 I/O delay
3 Base memory size	9 80387 coprocessor	3 Base memory	7 Memory delay
4 Extended memory size	10 Primary CRT adapter type	4 Power On memory test	8 Video controller
5 Floppy A	11 Additional setup		9 Primary monitor type
6 Floppy B			10 Additional setup

**COMPATIBLE HARD DISKS**

TYPE	MODEL	CAPACITY	CYL	T	WPC	LZ	SET
01	Standard 85 ms	10 MB	306	4	128	305	17
02	Seagate ST 225 half size	20 MB	615	4	256	700	17
03	WREN II full size	38 MB	925	5	128	924	17
04	CDC WREN 1 35ms full size	28 MB	697	5	128	696	17
05	ST4096	76 MB	1024	9	-1	1023	17
06	OPE XM5340	40 MB	820	6	256	819	17
07	NEC D5146H	40 MB	615	8	128	664	17
08	TM S1 im	40 MB	981	5	-1	980	-
09	CDC WREN II slim size	40 MB	981	5	128	980	17
10	Micropolis 1324 full size	51 MB	1024	6	-1	1023	17
11	CDC WREN II full size	53 MB	925	7	128	924	17
12	Micropolis 1325 full size	68 MB	1024	8	-1	1023	17
13	CDC WREN II full size	69 MB	925	9	128	924	17
14	Micropolis 1323 A full size	42 MB	1024	5	-1	1023	17
15	RESERVED						
16	Miniscribe 85 ms 3,5"	20 MB	612	4	128	656	17
17	Tandom TM362 85 ms 3,5"	20 MB	612	4	-1	663	17
18	Seagate ST251 40 ms half size	40 MB	820	6	-1	819	17
19	Rodime RO3055 40 ms 3,5"	43 MB	872	6	0	871	17
20	Miniscribe M8425 3,5"	20 MB	612	4	128	663	17
21	Seagate ST277R	62 MB	820	6	-1	819	26
22	OPE XM5340/60	62 MB	820	6	128	819	26
23	NEC D5147H	62 MB	615	8	384	664	26
24	Fujitsu M2246 ESDI	136 MB	820	10	-1	822	34
25	Micropolis 1355 ESDI	135 MB	1021	8	-1	1023	34
26	Micropolis 1353 ESDI	67 MB	1021	4	-1	1023	34
27	NEC D5452	68 MB	823	10	512	822	17
28	FUJITSU M2227D	40 MB	615	8	512	614	17
29	FUJITSU M2227D RLL	60 MB	512	8	512	614	26
30	CDC 94205-77	62 MB	981	5	-1	980	26
31		304 MB	814	15	-1	51	51
32		81 MB	977	5	-1	1	34
33		136 MB	820	10	-1	1	34
34	CDC 94196-766	600 MB	1623	15	-1	1	-
35	CONNER CP3142	40 MB	635	4	-1	639	33
36	CONNER CP346	40 MB	805	4	-1	804	26
37	CONNER CP3106	100 MB	776	8	-1	775	33

**Where:** CYL: No. of disk cylinders  
T: No. of disk heads  
WPC: Precompensation cylinder number  
LZ: Head parking cylinder number  
SET: No. of disk sectors

**MR 931 MEMORY EXPANSION BOARD**

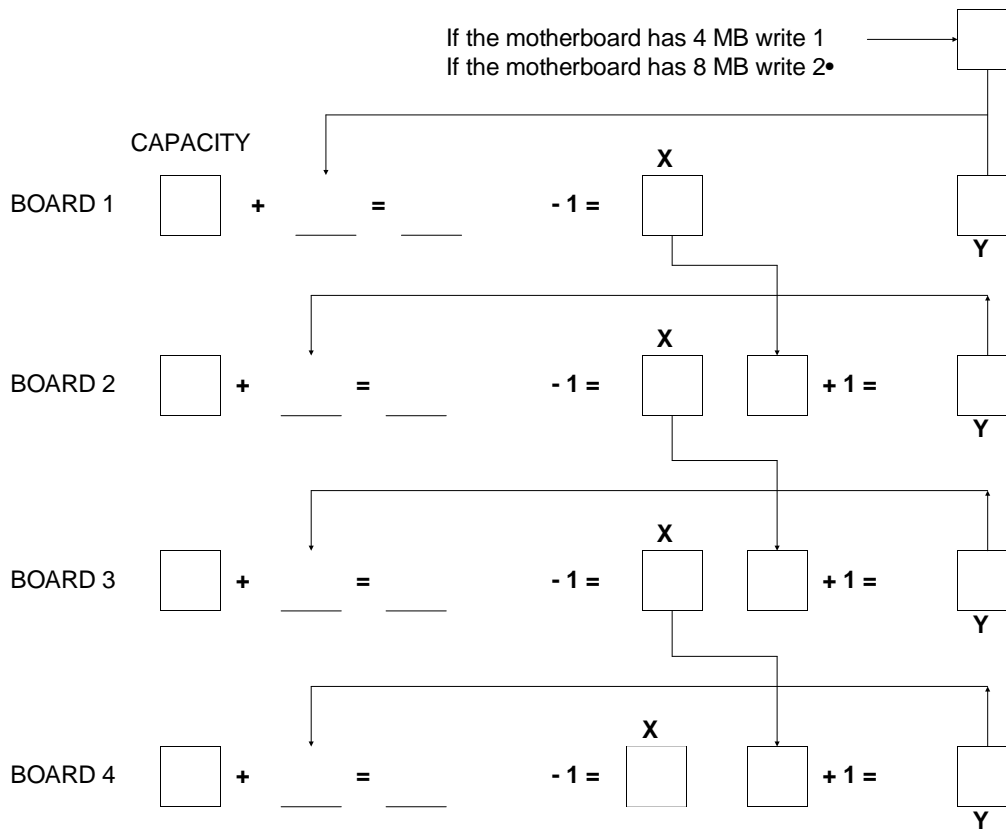


**CONFIGURATION OF BOARD DIP-SWITCHES**

NUMBER OF SIMMs INSTALLED	CONNECTORS WITH SIMMs INSTALLED	BOARD CAPACITY
4	A	4 MB
8	AB	8 MB
12	ABC	12 MB
16	ABCD	16 MB

**9**

**X AND Y CALCULATION SYSTEM**



**DIP-SWITCH SW1 SWITCHES 1 to 4**

Values that can be assumed by X	SW1 Switches 1 - 4				Values that can be assumed by X	SW1 Switches 1 - 4			
	1	2	3	4		1	2	3	4
1	ON	ON	ON	ON	9	OFF	ON	ON	OFF
2	OFF	ON	ON	ON	10	ON	OFF	ON	OFF
3	ON	OFF	ON	ON	11	OFF	OFF	ON	OFF
4	OFF	OFF	ON	ON	12	ON	ON	OFF	OFF
5	ON	ON	OFF	ON	13	OFF	ON	OFF	OFF
6	OFF	ON	OFF	ON	14	ON	OFF	OFF	OFF
7	ON	OFF	OFF	ON	15	OFF	OFF	OFF	OFF
8	OFF	OFF	OFF	ON					
	ON	ON	ON	OFF					

**DIP-SWITCH SW1 SWITCHES 5 to 8**

Values that can be assumed by Y	SW1 Switches 5 - 8				Values that can be assumed by Y	SW1 Switches 5 - 8			
	1	2	3	4		1	2	3	4
1	ON	ON	ON	ON	9	OFF	ON	ON	OFF
2	OFF	ON	ON	ON	10	ON	OFF	ON	OFF
3	ON	OFF	ON	ON	11	OFF	OFF	ON	OFF
4	OFF	OFF	ON	ON	12	ON	ON	OFF	OFF
5	ON	ON	OFF	ON	13	OFF	ON	OFF	OFF
6	OFF	ON	OFF	ON	14	ON	OFF	OFF	OFF
7	ON	OFF	OFF	ON	15	OFF	OFF	OFF	OFF
8	OFF	OFF	OFF	ON					
	ON	ON	ON	OFF					

**DIP-SWITCH SW2 SWITCHES 1 to 8**

All switches to be set to ON.

