

M290-25

CHARACTERISTICS

Microprocessor	INTEL 80286
Clock	20 MHz
Architecture	XT/AT with 32-bit addressing
Memory	From 1 MB to 17 MB on the motherboard Banks 0 & 1 1 MB, two 256 KB x 18 bit memory chips soldered Bank 2 On memory expansion board. 2 sockets in which SIMM modules can be installed: 1 M x 9 EXM 25-532 (2 MB) 4 M x 9 EXM 26-809 (8 MB) Bank 3 Same as bank 2
Memory access	80 ns
Coprocessor	20 MHz 80287
Floppy Disk	1.2 MB 5.25" Panasonic JU 475-3 C20 1.2 MB 5,25" Panasonic JU 475-4 C20 1.44 MB 3,5" Panasonic JU257 A 293 1.44 MB 3,5" Panasonic JU257 A 294 1.44 MB 3,5" Sony MP-F17W - 86 1.44 MB 3,5" YE DATA YD-702B-6049B
Hard Disk	40 MB QUANTUM LPS 52 AT 40 MB W.D. AC 140 40 MB CONNER CP3044 40 MB CONNER CP3046F 40 MB QUANTUM Pioneer ELS42 AT 85 MB W.D. Caviar 280 85 MB CONNER CP30084E 85 MB QUANTUM Pioneer ELS85 AT 120 MB CONNER CP30126 120 MB W.D. AC 2120 120 MB QUANTUM Pioneer ELS 127 AT
Streaming Tape	120 MB STU 38-120 with floppy interface
Slots	Three 16-bit connectors on the expansion BUS board
Video adapter	VGA-compatible integrated on motherboard
HDU and FDU controller	Integrated on motherboard Floppy disk controller: National Hard disk interface: MSI buffers and logic gates
Mouse	PS/2- and AT-compatible
Keyboard	101/102-key ANK 26-101, ANK 26-102

MOTHERBOARD BA 08 1 MB
BIOS Latest level: Rev. 2.01
EXPANSION BUS -
POWER SUPPLY 220 V
MOUSE AND KEYBOARD BOARD -
MEMORY EXPANSION BOARD -
HDU LED BOARD M203

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MOTHERBOARD

	LEVEL	D.R.S. CODE	ROM BIOS	NOTES
BA-08	Nasc.	612558T	Rev. 1.04	Motherboard with 1 MB memory.
	Lev. 01		Rev. 2.00	New topcat chip set (82C320A - 82C331A). This implies the addition of a 2 KOhm 1/4 W pull-up resistor R301 at location U 27, between CPU pins 5 and 62.
	Lev. 02		Rev. 2.01	<ul style="list-style-type: none"> - New BIOS to solve the following problems: - Random system crashes - No system bootstrapping - Incorrect management of the S-RAM board and of the A20 GATE signal - New hard disk table - Video controller WD90C11 has been replaced by the equivalent controller WD90C11A-LR.
	Lev. 03		Rev. 2.01	The new WD90C11-LR video controller replaces the WD90C11.
	Lev. 04		Rev. 2.01	The new ICS90C61 VGA clock generator replaces the WD90C61.

KEYBOARD AND MOUSE INTERFACE BOARD

	LEVEL	D.R.S. CODE	NOTES
	Nasc.	731143V	Integrating: Lithium batteries Interface connectors for keyboard and mouse CMOS RAM

LED HARD DISK BOARD

	LEVEL	D.R.S. CODE	NOTES
M203	Nasc.	059135X	
	Lev. 02		The DIODE has been replaced

MOTHERBOARD INTEGRATED CONTROLLERS

MOTHERBOARD	INTEGRATED CONTROLLERS
BA-08	80286 CPU 20 MHz microprocessor Soket for i387SX numeric coprocessor 8042 Keyboard and mouse controller WD90C11 V.G.A. video controller 87C310 Serial and parallel port controller NATIONAL Floppy disk controller MSI buffer Intelligent hard disk interface 27C010 BIOS Eprom TOPCAT System controller 82C320 BUS controller 82C331

BOARDS

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FUNCTION	DESCRIPTION	D.R.S. CODE	CHARACTERISTICS
CPU sytem board	BA-08	413251T	1 MB
220 V Power supply		413079S	
BUS Adapter board		029231Z	
Memory expansion board		059189E	
Keyboard and mouse board		030055Z	
Hard disk LED board		059135X	

USER DISKETTE

LEVEL	COMPATIBILITY
Rel. 1.89	-

SYSTEM TEST

LEVEL	COMPATIBILITY
Rev. 2.06	-

POWER SUPPLY UNIT

POWER SUPPLY	LEVEL	DESCRIPTION
220 V	Nasc.	
	Lev. 03	With this level the power supply was made to comply with Danish norms.

COMPATIBILITY NOTES

BOARD OR HW/SW DEVICE	DESCRIPTION
-	-

SOFTWARE DRIVERS

DRIVER	NOTES
EMS/LIM Ver. 4.0	For extended and expanded memory management.

BIOS

LEVEL	NOTES
Rev. 2.00	-
Rev. 2.01	This release solves the following: <ul style="list-style-type: none"> - Random system crashes - No system bootstrapping - Incorrect management of the S-ROM board and of the A 20 GATE signal. - New hard disk table

SOFTWARE COMPATIBILITY

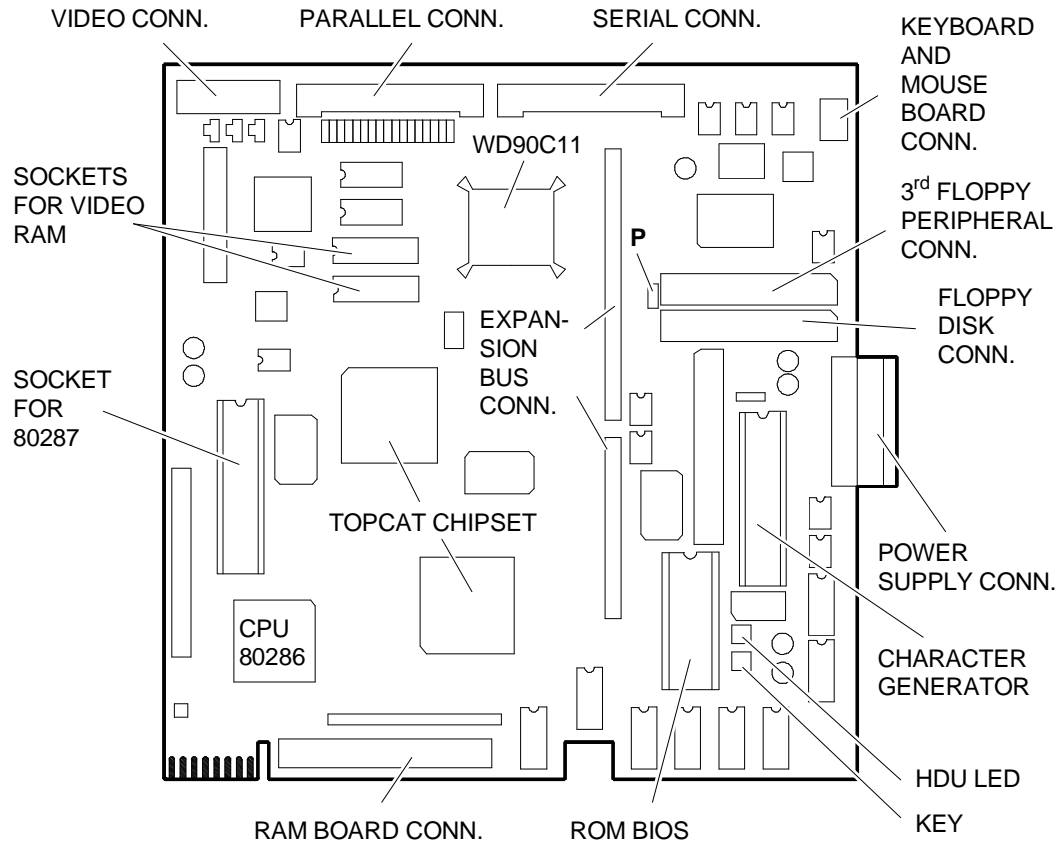
OPERATING SYSTEMS	NOTES
IBM DISK Operating System, Ver. 3.30 MS-DOS (Compaq) IBM DISK Operating System, Ver. 4.01 IBM Operating System/2, Ver. 1.10 and 1.20 IBM Operating System/2 Extended Edition, Ver. 1.10 and 1.20 INTERACTIVE 386/ix, Ver. 2.02 SCO UNIX System V/386, Rev. 3.2 SCO XENIX 386, Rev. 2.3	A formatted DSDD diskette is required during installation on hard disk The PS/2 mouse is not acknowledged The PS/2 mouse is not acknowledged
WINDOWS	
GEM/3 Desktop, IBM-PC Ver. 3.02 MS-WINDOWS /286 Ver. 2.11	MS-WINDOWS /386 Ver. 2.11 MS-WINDOWS 3 Ver. 3.0

HARDWARE COMPATIBILITY

MODEMS	I/P INTERFACE PRODUCTS
Hayes Smart modem 2400B FAXY PC MAXTER FURY 2400 PC MODEM AT&T 2224 GEO MODEM FURY 2400 MAXTER MODEM FURY 2400 TI/MNP Hayes Smart modem 1200 B	IBM PRINTER ADAPTER (1505200) STB 4-ON THE FLOOR
MULTIPOINT	MOUSE
CHASE AT8 COMPUTONE AT 8 COMPUTONE AT 16 INTEL Bell ICC.6 SPECIALIX SI / 8	IBM PS/2 Mouse (6450350) IBM PS/2 Mouse Serial Logitech Bus Mouse (PF-3F) Logitech 3 button mouse MS-BUS mouse MS-MOUSE serial
GRAPHIC PRODUCTS	NETWORK & LAN PRODUCTS
AST VGA plus FASTWRITE 1024i FASTWRITE VGA HERCULES GRAPHICS CARD IBM VGA Adapter MATROX PG - 1281 MAXON MVGA-16 Adapter ORCHID PRODESIGNER VGA PLUS HERCULES INCOLOR CARD (GB222) PARADISE VGA PRO CARD	10 NET INTERFACE BOARD 200 series 3COM Etherlink adapter 3C501 3COM Etherlink II adapter 3C503 3COM Etherlink plus adapter 3C505 3COM Etherlink plus adapter 3C505 DECNET PCSA adapter IBM PC NETWORK adapter II IBM TOKEN RING 16/4 adapter IBM TOKEN RING adapter II MADGE AT RING NODE adapter MICOM NP1000 adapter NOVELL NE1000 adapter NOVELL NE2000 adapter
DISPLAY UNITS	
IBM enhanced graphics monitor 5151 IBM color graphics monitor 5153 IBM PS/2 Monochrome display 8503 IBM PS/2 color display 8512 IBM PS/2 color display 8513 IBM PS/2 color display 8514 NEC MULTISYNC II	NEC MULTISYNC 2A NEC MULTISYNC 3D NEC MULTISYNC 4D NEC MULTISYNC 5D PHILIPS 7BM749 PHILIPS 9CM082

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COMPONENTS AND JUMPERS ON THE SYSTEM BOARD



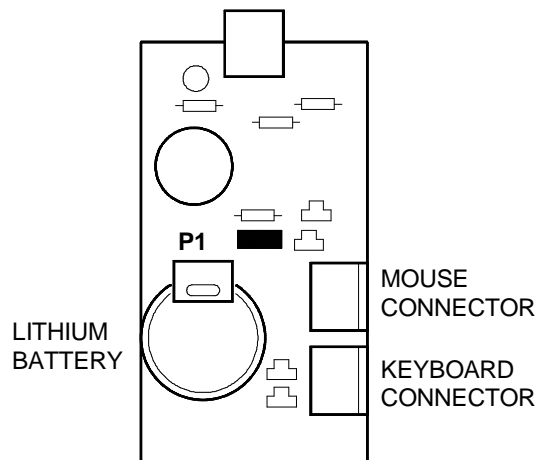
AMD3A

JUMPER P

Position 1-2
Position 2-3

Normal operation
Erases the password

COMPONENTS AND JUMPERS OF THE KEYBOARD AND MOUSE BOARD



ANG1A

P1 inserted:

Battery enabled, data present in CMOS RAM

P1 not inserted:

Battery disabled, no data in the CMOS RAM

BUILT IN SETUP and EXTENDED SETUP Utilities

BUILT IN SETUP

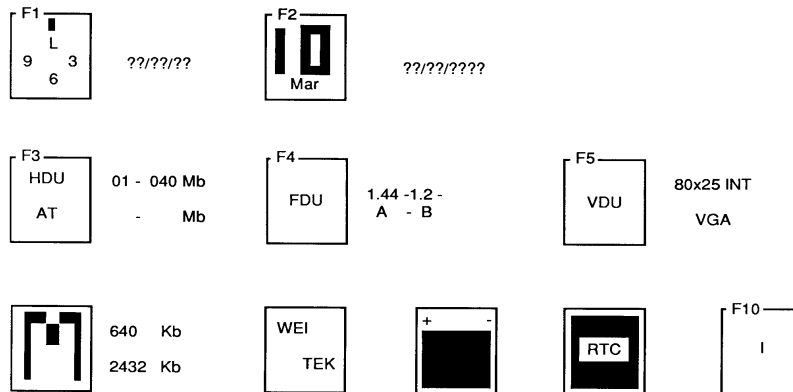
This program, resident in ROM BIOS, allows users to change some of the Personal Computer configuration parameters.

There are two possibilities:

First case: If the information in the CMOS RAM is no longer valid or if the power battery is not charging, the screen will display the BUILT IN SETUP. Users can select the national language version they wish to work in from a choice of 6 languages.

Second case: If the system configuration has been modified, only the icon of the device to be added or changed in the CMOS RAM will be displayed. For instance, after installing a second floppy disk the floppy disk icon will be displayed.

In both cases, this BUILT IN SETUP screen will be displayed automatically, without any operator action.



F1 To modify hour, minutes and seconds.

F2 To modify day, month and year.

F3 Press this key to select hard disk type and capacity. Press the space bar until the correct value is displayed. The following table lists the hard disks that can be installed in this system.

TYPE	MODEL	CAPACITY	CYL	T	SECTORS PER TRACK
01	W.D. AC 140	40 MB	980	5	17
02 *	QUANTUM LPS 52 AT CONNER CP 3044 CONNER CP 3046F QUANTUM ELS42 AT				
02	W.D. CAVIAR AC 280	85 MB	977	10	17
04 *	CONNER CP 30084E QUANTUM ELS85 AT				
03	W.D. AC-2120	120 MB	762	8	39
06*	CONNER CP 30126 QUANTUM ELS127 AT				

Where: T: No. of heads
 CYL: No. of cylinders
 (*) With BIOS 2.01

F4 Press this key to select capacity of the floppy disk. Three fields will be displayed beside the icon, according to the number of drives (1, 2 or 3) in the system; enter the capacity of the floppy disk installed in the corresponding field.

The line underneath shows the letters A (for one drive only), A - B (for two drives) or A - B - X (for three drives). These are the logic names of the drives.

NOTE: To install a floppy interface streaming tape, the data field corresponding to this unit must not contain any value and the drive must have logic name B associated with it.

F5 Press this key to select video format when the system is switched on.

Memory	The information in this field cannot be changed since its only purpose is to inform the user of system memory capacity. The System or Customer Test diskette will be needed if you wish to change system memory size.
Numeric coprocessor	This icon is displayed only when the WEITEK coprocessor is installed and is for the information of the user only.
Batteries	This icon is displayed only when the system is switched on for the first time or when the system batteries are not charging.
Real time clock	This icon blinks when there is a failure of the system's <i>Real Time Clock</i> .
Language	It is possible to select the language in which to have the messages of the BUILT IN SETUP displayed. There are six languages to choose from.

EXTENDED BUILT IN SETUP

In addition to the BUILT IN SETUP utility, there is another utility called EXTENDED BUILT IN SETUP with which other parameters of the system can be configured. This utility can be called by the operator by pressing the keys SHIFT, CTRL, ALT and DEL at the same time.

F1 L 9 3 6	13:38:20	F2 10 Mar	10/03/91		
F3 HDU AT	01 - 040 Mb - Mb	F4 FDU	1.44 - 1.2 - A - B	F5 VDU	80x25 INT VGA
F6 EMS TEST SHAD	2048/ 128 3 BIOS 128+VGA	F7 RAM I/O CACHE	33 11 Y	F8 chrs/s beep paral	30 7 I/O
				F9 [Key Icon]	F10 I
Exit ESC		Select	Confirm CR	Restart	Messages Press F1F2F3F4F5F6F7F8F9F10

This menu includes all icons of the BUILT IN SETUP and allows the system to be configured as described previously.

The following other configuration parameters have been added:

- F6** EMS Used to modify capacity of the extended memory and memory expansion.
- TEST Used to reduce the number of tests made on the system memory during the power-on diagnostics.
- SHAD Used to assign a quantity of shadow memory to the BIOS and specific areas of memory.
- F7** RAM Used to modify system speed from the default value of (33 MHz) to 14 MH.,
- I/O Used to modify the system BUS speed from the default value of 11 MHz to the AT standard speed of 8 MHz.
- F8** CHR/S Used to modify character repeat speed when the associated keys are pressed. This key repeat value is expressed as a number of characters per second.
- BEEP Used to increase or decrease speaker volume.
- PARAL Used to change direction of the parallel port.
- F9** The system allows the user to enter a **PASSWORD**.

INTERRUPT LEVELS

LEVEL	NAME	CONTROLLER	FUNCTION
1	NMI		Parity error
2	IRQ0	1	Channel 0 timer OUT
3	IRQ1	1	Keyboard
4	RQ8	2	Real time clock
5	IRQ9	2	Software redirected to INT 0AH (IRQ2)
6	IRQ10	2	Available
7	IRQ11	2	Available
8	IRQ12	2	Mouse
9	IRQ13	2	Available
10	IRQ14	2	Hard Disk controller
11	IRQ15	2	Available
12	IRQ3	2	Serial port 2
13	IRQ4	1	Serial port 1
14	IRQ5	1	Parallel port 2
15	IRQ6	1	Floppy Disk controller
16	IRQ7	1	Parallel port 1

I/O ADDRESS MAP

ADDRESS	FUNCTION	ADDRESS	FUNCTION
000-00F	DMA controller 1	2B0-2DF h	Video control registers
020-02F h	Interrupt controller 1	2E1 h	Reserved
040-05F h	Timer	2E2 h & 2E3 h	Reserved
060 h	Keyboard data controller	3F8-2FF h	COM2 serial port
061	System control port B	300-31F h	Reserved
064 h	Keyboard commands controller	360-363 h	Part low of the address
070 - 07F	Real time clock, NMI, CMOS RAM	364-367 h	Reserved
080-09F h	DMA page registers	368-36B h	Part high of the address
0A0-0AF h	Interrupt controller 2	36C-36F h	Reserved
0E8-0EF h	I/O control registers	378-37F h	Parallel port 1 (LPT1)
0F0 h	Cancels math coprocessor operation	380-38F h	SDLC (Synchronous Data Link Control)
0F1	Resets the math coprocessor	3A0-3AF h	SDLC (Synchronous Data Link Control)
0A8-0FF h	Math coprocessor	3B0-3BF h	Video control registers
1F0-1FF h	Hard disk drive	3C0-3CF h	Video control registers
200-20F	Game port	3D0-3DF h	Video control registers
21F h	Audio communications adapter	3F0-3F7	Hard disk controller
278-27F h	Parallel port 2 (LPT2)	3F8-3FF	Serial port 1 (COM1)

SYSTEM MEMORY MAP

ADDRESS	FUNCTION
000000 - 0003FF h	Interrupt vectors
000400 - 005FF h	ROM BIOS data area
000700 - 09FFFF h	Portion of the resident MS-DOS operating system and program area
0A0000 - 0BFFFF h	Video buffer
0C0000 - 0DFFFF h	Available for optional ROM
0E0000 - 0EFFFF h	Video BIOS
0F0000 - 0FFFFFF h	System BIOS