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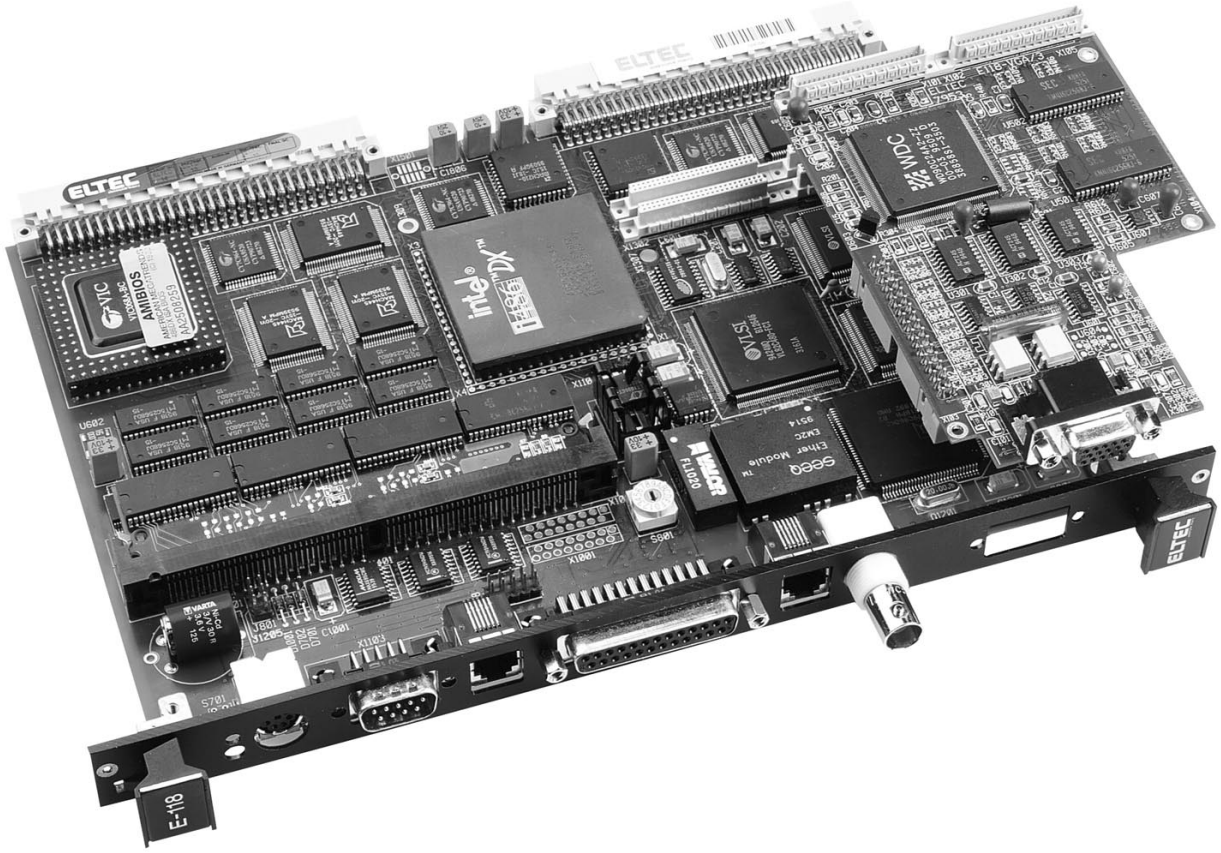
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Datasheet

EUROCOM 118

VMEbus PC



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Main Features

- Single slot EUROCOM board, software compatible to IBM's AT standard
- Intel486 DX CPU running at 33, 66 or 100 MHz
- Pentium Overdrive chip may be used (Pentium with '486 Interface).
- 4 to 32 MB multiported DRAM,
  (CPU, VMEbus, Network)
- 256 kByte second level cache
- Flash EPROM for BIOS including network boot
- Windows accelerated, high resolution, local bus based SuperVGA-Graphics
- up to 1024 x 768 x 256 non-interlaced
- directly connectable to CRT and flat panels.
- On-board Ethernet controller
- All standard AT peripherals on board
- SCSI / SCSI-2 based 8 bit harddisk interface
- onboard 16 kByte Parameter SRAM with battery backup
- Complete VMEbus interface based on the VIC chip.
- High-speed 32 bit VMEbus interface connected to the local i486 bus.
- Two VMEbus master address windows; 512 MB extended window and 64 kB real (DOS) window
- Read modify write cycles can be used in master and slave mode.
- Software-selectable hardware byte-swapping.
- full VMEbus interrupt support
- Multiple operating systems available

General Description

EUROCOM 118 is a powerful and flexible Intel486DX based single board computer with VMEbus interface and basic I/O functions on board.
An easy-to-use coupling software package to connect the EUROCOM 118 under DOS and Windows with 68k-based boards under OS 9 is available to get the best of both worlds together.

Technical Details

CPU

The CPU is an Intel 486DX microprocessor running at 33 to 100 MHz. This processor offers high performance for DOS, Windows, Unix and Lynx applications. It is 100 % binary compatible with the Intel386 CPU. A RISC integer core, floating point hardware, a memory management unit and an 8 or 16 kB cache memory is integrated in the 486 chip. A high system throughput is guaranteed by 106 MB/s burst bus at 33 MHz.
Intel's Pentium Overdrive Chip (Pentium with '486 Interface) may be used also.

Cache

For highest system performance a 256 KB second level cache with two-bank interleave is provided. The cache controller is designed with a look-aside, write-back architecture for increased write performance as well as read performance.

DRAM

The multi-ported DRAM is accessible from the CPU, the VMEbus slave interface and from local devices like DMA controller and LAN.
The DRAM is standard located on a SIMM. This gives the user a flexible and cost-effective memory solution.

Flash EPROM

On-board is an erasable and programmable basic Flash EPROM. It contains the AMI BIOS, the VGA BIOS, the Net-Boot BIOS, and basic initialisation and configuration routines for the VMEbus interface.

Parameter SRAM

An on-board 16 kByte battery backuped SRAM is able to process parameters even in power fail situations.

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Network Interface

The network interface is realised with an AM79C960 PCnet-ISA single chip Ethernet controller with 10Base2 (Cheapernet) or 10BaseT (twisted-pair) networks.

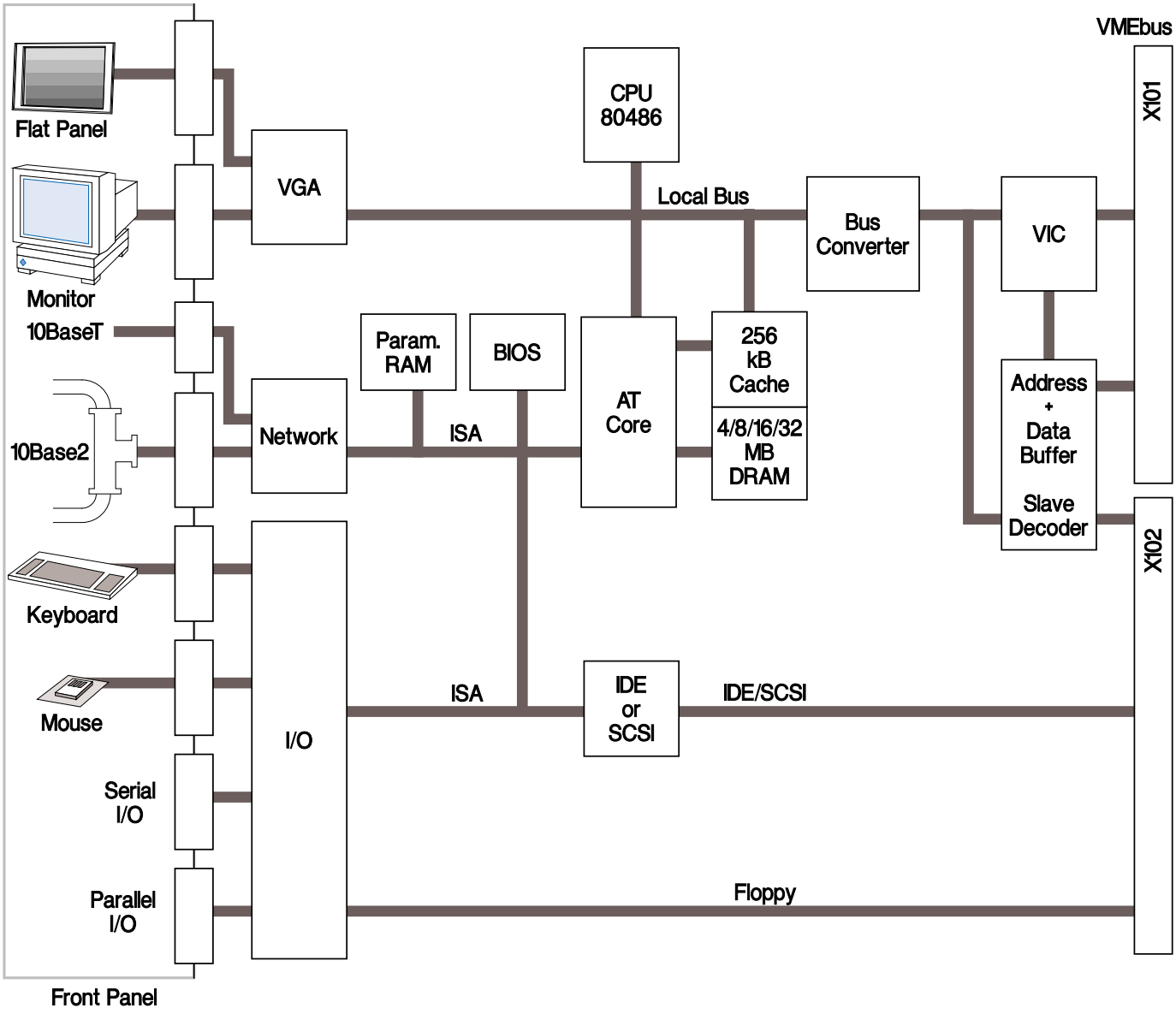
The individual 136 Byte transmit and 128 Byte receive FIFO optimise system overhead, providing sufficient latency during packet transmission and reception, and minimise intervention during normal network error recovery.

The network interface of the EUROCOM 118 is also compatible with the Novell NE2100 and NE1500T Ethernet adapters.

Graphics

The EUROCOM 118 uses the WD90C24 SuperVGA controller chip. This device is connected to the local i486 bus for high speed data transfer to the 1 MB VGA memory. CRT and all current flat panel technologies like STN, DSTN, TFT, EL Plasma and LCD are supported.

A special power control circuit is implemented to protect flat panel displays.



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Local I/O
EUROCOM 118 supports all standard AT peripherals. All Front Panel Connectors are filtered via special varistors and other components to reduce the electromagnetic emision and absorption. So the Board has a high protection against EMC. This facilitates the user to build equipment that fulfills the CE requirements.
A keyboard can be connected to a PS/2 compatible mini DIN connector.

Two serial I/O lines are compatible to COM1 and COM2. COM1 is connected to a standard 9 pin Sub D connector. This serial I/O line can be configured to support either RS 232, RS 422 or RS 485.
COM2 is connected to a 6 pin RJ11 jack and is intended for connection of a serial RS 232 mouse.

The parallel printer port (LPT1) is connected to a 25 pin Sub D connector.

The floppy disk, IDE interface and the loudspeaker signals are connected to the user-defined pins on row A and C of the P2 VMEbus connector.

SCSI Interface with NCR 53C406A may be used instead of IDE based interfaces.

The on-board real time clock and the CMOS RAM are battery backed.

VMEbus Interface
The VMEbus interface is designed around the powerful, industry standard VMEbus Interface Controller (VIC68) gate array.

All functions of the VMEbus interface are fully software programmable to allow a maximum flexibility in VME-bus system design.

The EUROCOM 118 master/slave VMEbus interface allows shared memory accesses between the local CPU and external VMEbus devices. The external base address is software adjustable in standard and extended VMEbus address space. The bus interface supports unaligned data transfer modes (8, 16 and 32 bit) and read-modify-write operations.

Two windows for VMEbus master accesses give optimised performance for standard DOS applications using the real address mode and for Windows, Unix and Lynx applications using the extended addressing mode.

To handle the different byte ordering schemes of the CPU and the VMEbus a byte swapping hardware can be enabled by software.

The EUROCOM 118 can generate and receive interrupts an all seven VMEbus IRQ lines.

Software Details

The basic firmware is stored in an on board 256 KB Flash EPROM (FEPROM) containing the following modules:

- Standard PC BIOS (AMI) with basic functions, e.g. for keyboard, timer, disk/harddisk controller, serial and parallel interface, basics for video display, power on self test and setup.
- VGA BIOS with standard IBM VGA compatible BIOS calls, extended and VESA BIOS calls, containing functions for e.g. setting video modes, character and pixel handling, write read palette registers and also power on self test.
- Net Boot software (Boot PROM) and Internet Address.
- Software for the VMEbus interface with self test, setup and initialisation (standard and user-defined setup) including VIC programming (similar to RMON), setting the real/protected mode window for VMEbus access, and interrupt handling.

The EUROCOM 118 is a full IBM compatible single board PC, so all PC operating systems (DOS/Windows, OS/2, LynxOS, SCO Unix, Windows NT, etc.) and also all standard PC software (e.g., Microsoft/ Borland C, Windows applications, etc.) is usable.

As a multitasking real time system, OS-9 meets the requirements for complex control tasks. On the other hand, the Intel world opens the door to a large number of efficient and low cost software products for software development, evaluation and display of data.

To get the best of both worlds together, a powerful and easy to use coupling software package is available to connect the EUROCOM 118 under DOS and Windows with 680x0 boards (68k boards) under OS-9. This software package consists of two main parts, one on the OS-9 side and one on the DOS/Windows side. The OS-9 software provides access to the PC re-

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sources, such as keyboard, monitor, graphics, printers, serial interface, disk drives and hard disks.

There is no terminal necessary for the 68k board. Under DOS the terminal is switched from DOS to OS-9 by a hotkey. Under Windows up to 15 OS-9 windows with a VT100 emulation running and a OS 9 shell can be started.

The 68k board can use the disk drive/harddisk in several ways:
On the harddisk the OS-9 system may have an own parti-tion, but several OS-9 files can also be contained in one normal PC file which looks to OS-9 like a OS-9 file system. Original OS-9 disks can be read/written/formatted, also with universal format. These mechanisms are based on the OS-9 manager 'rbf'. The most connective mechanism of mass storage management is based on the separate OS-9 file manager 'dosman', which allows to access DOS file structures under OS-9. Not only the logical PC drives A:, B:, C:, etc. can be reached, but also virtual drives like the file server of a PC network and RAM disks. So DOS files can be read and written from both sides (OS 9 and DOS) allowing, for instance, software development under DOS/Windows, switching by hotkey or activating another window to OS-9, compiling there and switching back to DOS/Windows.

Tables

Connectors assignments

25-pin min-D connector (parallel I/O - LPT1)

Pin	Signal	Description
1	/STB	Strobe
2	PD0	Data bit 0
3	PD1	Data bit 1
4	PD2	Data bit 2
5	PD3	Data bit 3
6	PD4	Data bit 4
7	PD5	Data bit 5
8	PD6	Data bit 6
9	PD7	Data bit 7
10	/ACK	Acknowledge
11	BUSY	Busy
12	PE	Page End
13	SLCT	Select
14	/AFD	Auto Feed
15	/ERR	Error
16	/INIT	Initial
17	SLIN	Select Input
18 - 25	GND	Ground

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6-pin miniature circular (mini-DIN) connector (Keyboard)

Pin	Signal	Description
1	KBDATA	Keyboard data
2	nc	not connected
3	GND	Ground
4	+5V	Supply voltage
5	KBCLK	Keyboard clock
6	nc	not connected

9-pin min-D connector (Serial I/O - COM1)

Pin	Signal	SILC 200	SILC 300	SILC 400
1	DCD	Data Carrier Detect	I(B)	nc
2	RxD	Receive Data	R(A)	nc
3	TxD	Transmit Data	T(A)	A
4	DTR	Data Terminal Ready	C(B)	nc
5	GND	Ground	T(B)	nc
6	DSR	Data Set Ready	nc	nc
7	RTS	Request to Send	C(A)	nc
8	CTS	Clear to Send	I(A)	B
9	RI	Ring Indicator	R(B)	nc

6-pin Mouse-Port (Serial I/O - COM2)

Pin	Signal	Description
1	RTS	Request To Send
2	TxD	Transmit Data
3	GND	Ground
4	GND	Ground
5	RxD	Receive Data
6	CTS	Clear To Send

96-pin P2 connector

Pin	Row A	Row B	Row C
1	/RST_IDE	+ 5 V	GND
2	DL7	GND	DL8
3	DL6	Reserved	DL9
4	DL5	A24	DL10
5	DL4	A25	DL11
6	DL3	A26	DL12
7	DL2	A27	DL13
8	DL1	A28	DL14
9	DL0	A29	DL15
10	GND	A30	NC
11	NC	A31	GND
12	/IOWL	GND	GND
13	/IORL	+ 5 V	GND
14	NC	D16	BALEL
15	NC	D17	GND
16	IRQ14	D18	/IOCS16
17	AL1	D19	NC
18	AL2	D20	AL2
19	/HCS0	D21	/HCS1
20	/ACT	D22	GND
21	NC	D23	SOUND
22	NC	GND	NC
23	NC	D24	NC
24	NC	D25	NC
25	DENSEL	D26	DRATE0
26	/INDEX	D27	/MTR0
27	/DR1	D28	/DR0
28	/MTR1	D29	/DIR
29	/STEP	D30	/WDATA
30	/WGATE	D31	/TRK0
31	/WP	GND	/RDATA
32	/HDSEL	+ 5 V	/DSKCHG

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34-pin Floppy Interface connector

Pin	Signal	Description
2	/RWC	
4	/HDL	Head load
6	nc	Not connected
8	/IDX	Index
10	/MON 1	Motor on 1
12	/DS 2	Drive select 2
14	/DS 1	Drive select 1
16	/MON 2	Motor on 2
18	/DIR	Direction
20	/STEP	Step
22	/WD	Write data
24	/WE	Write enable
26	/TR 0	Track 0
28	/WP	Write protect
30	/RDD	Read data
32	/HS	Head select
34	/DCHANGE	Disk change

All odd pin connected to ground!

4-pin Loudspeaker connector

Pin	Signal	Description
1	+5V	Supply voltage
2	GND	Ground
3	GND	Ground
4	SOUND	Sound

15-pin VGA connector

Pin	Signal	Description
1	RED	Red (analog)
2	GRN	Green (analog)
3	BLU	Blue (analog)
4	n.u.	not used
5	GND	Ground
6	GND	Ground
7	GND	Ground
8	GND	Ground
9	GND	Ground
10	GND	Ground
11	n.u.	
12	n.u.	
13	HSYNCH	Horizontal Synchronization (TTL)
14	VSYNCH	Vertical Synchronization (TTL)
15	n.u.	

26-pin VGA Flat Panel connector

Pin	Signal	Description
1	GND	Ground
2	VO	
3	PNVCC	Supply voltage (+3.3 V or +5 V/max. 0.1 A)
4	TPVCC_OUT	TFT panel supply voltage out (-48 V..+48 V/ max. 0.3 A)
5	TPVCC_IN	TFT panel supply voltage in (-48 V..+48 V)
6	TPD(0)	Data line
7	GND	Ground
8	TPD(2)	Data line
9	TPD(1)	Data line
10	TPD(4)	Data line
11	TPD(3)	Data line
12	TPD(6)	Data line
13	TPD(5)	Data line
14	GND	Ground
15	TPD(7)	Data line
16	TPD(13)	Data line
17	TPD(12)	Data line
18	TPD(15)	Data line
19	TPD(14)	Data line
20	+5V	Supply voltage +5 V
21	GND	Ground
22	TPUCLK	Upper shift clock
23	TPFP	Frame pulse
24	TPLP	Latch pulse
25	TPEN	Panel enable
26	TPLCLK	Lower shift clock

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EUROCOM 118

Datasheet

Specification

VMEbus Eurocard Specification

- VMEbus interface according to specification Rev. C1 (IEEE1014-87, IEC821/297) no VMEbus BLT available

Master Data Transfer Options
- A32:D32:RMW:UAT

Slave Data Transfer Options
- A32:D32:D16:D8(EO):RMW
- A24:D32:D16:D8(EO):RMW:UAT
- A16:D16:D8(EO):RMW
  (inter processor communication only)

Read Modify Write	RMW
Unaligned Transferes	UAT

System Controller Options
- SYSCLK driver
- SYSRESET driver
- IACK daisy chain driver
- Arbiter with BBSSY filter
- BTO(4, 8, 16 ... 512, ∝)

Arbiter Options

• Priority	PRI
• Round Robin Select	RRS

Requester Options
- Any of BR(0..3)

• Release when done	RWD
• Release on request	ROR
• Release on bus clear	ROC
• Bus capture and hold	BCAP

- programmable fair request timer 2 ... 30 ms

Interrupt Handler Options
- IH (1..7)
- dynamically by software

Interrupter Options
- Any one of I (1...7)

Environmental Conditions

• Storage Temperature:	-20 °C to +65 °C
• Operating Temperature:	0 °C to +55 °C [1) 3)]
	0 °C to +35 °C [2) 3)]
• Maximum Operating Humidity:	85% relative

- Power Requirements

3,5 A max. / 2,5 A typ.	at +5 VDC ±5% [1)]
5,0 A max. / 3,5 A typ.	at +5 VDC ±5% [2)]
0,2 A max.	at +12 VDC ±10%
0,1 A max.	at -12 VDC ±10%
30 µA max.	at +5 VDC stand-by ±10% [4)]

Ordering Information

Hardware

Eurocom118-100 **V-E118-D100**
80486DX CPU, 33MHz,IDE, Ethernet, SVGA (VGA)

Eurocom118-110 **V-E118-D110**
80486DX/2 CPU, 66MHz, IDE, Ethernet, SVGA (VGA)

Eurocom118-120 **V-E118-D120**
80486DX/4 CPU, 100MHz, IDE, Ethernet, SVGA (VGA)

Eurocom118-200 **V-E118-D200**
80486DX CPU, 33MHz, SCSI, Ethernet, SVGA (VGA)

Eurocom118-210 **V-E118-D210**
80486DX/2 CPU, 66MHz, SCSI, Ethernet, SVGA (VGA)

Eurocom118-200 **V-E118-D220**
80486DX/4 CPU, 100MHz, SCSI, Ethernet, SVGA (VGA)

Software

WinDOS-RT **W-MSRT-A106**
MS-DOS and
MS Windows for Workgroups **W-MS18-A106**

Related Products

Hardware Manual for EUROCOM 118 **V-E18-A990**

1) 32 MHz CPU, 4 MB DRAM, no cache, VGA
2) 64 MHz CPU, 32 MB DRAM, 256 KB cache, VGA
3) Air temperature with forced air cooling of approx. 1 m/s
4) Optional standby voltage

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