

Notebook Specification

This appendix provides the technical specification of the MD02 notebook:

A.1 System Specification

CPU	Intel Dothan 1.8GHZ	
Core Logic	Intel Montara-GM+ (North Bridge) : CPU(Dothan) I/F VGA Controller LVDS I/F DVOB&DVOC IF. RGB analog I/F 200/266/333 DDR MEMORY I/F Hub-Link I/F Intel ICH4-M (South Bridge) : Integrated Hub-Link I/F to connect with PCI Bridge Dual IDE Master/Slave Controller ,Integrated DMA Controller 1.1/2.0 Universal Serial Bus Host Controller Integrated 10/100M Fast Ethernet MAC Controller Integrated Audio Controller with AC97 V2.2 Interface Advanced Power Management(ACPI) RTC Integrated PCI to LPC Bridge Integrated Audio Controller with AC97 Interface PCI Bus Interface (PCI 2.2 compliant) GPIO Advance PIC	
Cache Memory	L1 Cache (Pentium Processor internal): 32KB code and 32KB data L2 Cache (Pentium Processor internal): 1MB Advanced Transfer Cache,8 way associativity 64-byte line size	
System Memory	Expansion Memory: 2 SO-DIMM Slot (1.25") Size: 128/256/512MB/1G Type: DDR DRAM, 3.3V Data Path: 64Bit Frequency : 266/200MHz Please refer to the MD02 Key component list in detail.	
BIOS ROM	Flash ROM 1 st Vendor : SST 49LF004A TSSOP Package 4Mbit LPC flash ROM 2 nd Vendor : <TBD> 4Mbit, 32 pin TSSOP package	

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Super I/O	None	
RTC + NVRAM	Integrated in South Bridge (Intel ICH4-M) Real Time Clock with 256 byte extended CMOS. IBM AT Clock/Calendar/Alarm (14 Bytes)	
K/B Controller	Mitsubishi M38859 LPC KBC Internal K/B, Touch Pad, External K/B or M/S Supported A20Gate,firmware version 2.14	
PMU	New PMU08 Mitsubishi M38859FFHP Embedded Controller	
VGA Controller	Embedded in Intel Montara-GM+ High Performance and high quality 3D accelerator Integrated dual DVO bridge Integrated LVDS Interface Integrated RGB analog Interface High performance 2D accelerator Complete TV-OUT/Digital Flat Panel Solution	
VRAM	Share system memory, UMA (using DVMT configuration)	
TV out encoder	None	
CardBus Controller	TI PCI4510 (PCI Card Bus controller) PC/Card Bus Type II x1 Build in smart card (none)	
Sound	AC'97 CODEC Realtek ALC202 AC'97 Revision 2.2 Compliant	
Modem	Ambit MDC modem V.90, K56flex, ITU-T V.34, V.32, RJ11 Jack TIA/EIA 602, V.42 ITU-T V.17, V.29, V.27ter, V.21 Ch2 TIA/EIA 578 Class1 FAX Wake up on Ring	
On board LAN	Intel ICH4-M + BroadCom BCM4401 Support LAN boot Support for auto-negotiation (10BASE-T and 100BASE-TX) Wake up On LAN	
802.11b	Support by Intel Calexico Mini-PCI Wireless LAN Card <Design Ready Only>	
1394	TI PCI4510, support one port	
Cellular I/F	Support PDC/PIAFS/CdmaOne/Dupa(None)	
USB Intel ICH4-M	Integrated in South Bridge Intel ICH4-M) USB v.1.1 and Intel Universal HCI v.1.1 compatible USB v.2.0 and Enhance Universal HCI v.2.0 compatible Eighteen level (doublewords) data FIFO with full scatter and gather capability Root hub and four function ports Integrated physical layer transceivers with optional over-current detection status on USB inputs	
IDE	Fast IDE, 2 ports:	

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Interface (Intel ICH4-M)	--Integrated multithreaded I/O link mastering with read pipelined streaming --Dual independent IDE channel each with 16 DW FIFO --Native and compatibility mode --PIO mode 0,1,2,3,4, and multiword DMA mode 0,1,2 --Ultra DMA 33/66/100	
Printer Interface	None	
Serial Interface	None	
External PS/2 Port (M38859)	External Keyboard or PS/2 Mouse Exclusively connected Can use both device by using branch cable(option)	
Universal Serial Bus (Intel ICH4-M)	--Integrated multithreaded IO link mastering --Dual independent OHCI controllers with root hub --Support up to 6 USB ports --Support legacy devices --Over current detection equipped --Option to separately configure each port as a wake-up source	

A.2 Display Specification

14.1" TFT LCD (AU)	
LCD Model	B141XN04
LCD Type	14.1" TFT
Display Pixels	H1024 x V768 pixels
Pixel Arrangement	RGB vertical stripe
Display colors	262K Colors
Module Size	298.5(W) x 227.5(H) x 5.8(D) [mm]
Weight	Approx. 500g
Contrast Ratio	200:1 (typ.)
Power Supply	3.3V
Response Time	30ms (max)
Operating Temperature	0 to 50 degrees Celsius
Storage Temperature	-20 to 60 degrees Celsius

A.5 DVD/ RW Combo Drive Specification

Drive Manufacturer	KME UJDA745FC-A
Physical Dimension	128.0 x 12.7 x 129 [mm] (W * H * D)

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Weight	250g +/- 10g
Loading	Manual tray loading
Ejection	Manual eject using the eject button Auto eject using the eject command on software
Host Interface	Enhanced IDE (ATAPI)
Average Access Time	150ms Typ.
Data Transfer Rate (burst)	16.7 MByte/s (PIO Mode 4) 16.7 MByte/s (Multi word DMA transfer mode-2) 33.3 MByte/s (Ultra DMA transfer mode-2)
Data Transfer Rate (sustained)	Max. 2,100Kbyte/s (CD-RW) ; Max.3,600Kbyte/s(CD)
Data Write Rate	Max. 1,200Kbyte/s (CD-R) ; Max.600Kbyte/s(CD-RW)
Starting Time	Max. 10 sec (from stand by to ready)
Data Buffer Capacity	2MB
Supply Voltage	+5VDC +/- 15%
MTBF	50,000POH or more

A.6 Keyboard Specification

Keyboard Type	ALLTOP PAN-international
Type of key switch	Membrane (PE) Switch
Number of keys	87 keys with embedded numeric keypad
Compatibility	Enhanced 101/102 emulation
Travel	3.0 mm \pm 0.3 mm
Keyboard Height	6.5 \pm 0.3 mm 7.0 \pm 0.3 mm (SPACE Key)
Keycap Pull Off Force	\geq 500g
Supply Voltage	6V
Operating Temperature	-10 to 60 degrees Celsius

A.7 Touch Pad Specification

Interface	PS/2 (compatible with Microsoft Mouse Driver)
Supply Voltage	5V
Supply Current	4.0mA (Max) Operating
Dimension	W65 x H49 x D2.82 (D1.07 PCB) mm
Weight	8g.
Operating Temperature	0 to 60 degrees Celsius
Storage Temperature	-40 to 65 degrees Celsius

A.8 On board Modem Specification

Modem Type	Ambit
Wake Up Function	Supports Ring-in Resume Wake Up function
Connection Mode	V.90 Kbps
Speakerphone	Full duplex speakerphone (FDSP)

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Fax Transmission Way	Half Duplex
Modem Speed	56 Kbps
Modulation Format	V.90 PCM

A.9 On board LAN Specification

LAN Type	Intel ICH4-M + BoardCom BCM4401
Speed	10/100 Mbps
Wake Up Function	Supports Wake-on-LAN (WOL) function

A.10 Power Supply

AC POWER ADAPTER	
Input Voltage	100 to 240VAC
Input Frequency	50 to 60 Hz
Input Current	1.32A Max at 110VAC 0.66A Max at 220VAC
Efficiency	83% Min
In-Rush Current (Cold Start)	50A Max at 100 VAC 100A Max at 240 VAC
Output Power	60W
Output Voltage	+16Vdc (main)
Output Current	3.16A (Max)
Over Voltage Protection	24V Max
Over Current Protection	19V / 5A (max)
Dimension	L110 x W50 x H29 [mm]
Weight	250g
BATTERY PACK	
Model	Sanyo Li-Ion Rechargeable Smart Battery
Cell Number	8
Rating (Nominal) Voltage	14.4V
Typical Capacity	3600 mAh
Watts	52 W
Charging Voltage	16.8V
Charging Efficiency	100%
EVD1	14.0V
EVDF	12.0V

A.11 Inverter Specification

Input Voltage	5.0V
Start Voltage	1200Vrms (min)
Output Current	6mA (max)
Frequency	30~70KHz

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Efficiency	75% (min)
Brightness Control Voltage	0.94~1.86V

A.12 DC/DC Specification

Controller	PMU 08
Input Voltage	8 ~ 20V
Output Current	4A (5V) / 4A (3.3V) / 100mA (12V)
Frequency	200KHz
Support Mode	OVP / OCP

A.13 Charger Specification

Controller	PMU 08
Input Voltage	18.5 ~ 20V

A.14 Mechanical Specification

Unit Dimensions (W x D x H) in millimeters	310MM X 266MM X 27.3 MM (H) SUPPORTS KENSINGTON LOCK
Unit Weight	AROUND 2.54 KG OR 4.5 LBS WITH 14.1" LCD SYSTEM WITH HDD, FDD, CD-ROM AND ONE LI-ION BATTERY PACK

A.15 Environmental Requirements

Temperature Operating Temperature Storage Temperature	5°C to 35°C -20°C to 60°C
Humidity Operating Storage	10% to 80% RH without condensation 5% to 90% RH without condensation
Shock (Non-operating) Unpacked	Acceleration: 30G/50G Duration Time: 11ms No. of Times: 3 Times Direction: 6 face
Drop Package	Drop Height: 91cm (under 10Kg) 76cm (over 10Kg) Drop Phase: 1 corner, 3 line, 6 face
Electro-Static Discharge (ESD)	Contact: +/- 6KV Air: +/-10KV