

Specifications

The Notebook Computer is a state-of-the-art, high performance, portable system. It offers a host of features specially designed to enhance performance and usability.

Processor Module

- Intel Mobile Module (IMM) structure.
- 133/150/166/200/233/266MHz Intel Pentium Processor Module.
- 233/266/300MHz Intel Pentium II Processor Module.

Memory

- 3.3V power supply.
- Supports Fast Page Mode/EDO/SDRAM.
- 256KB/512KB secondary cache Pipeline Burst Synchronous SRAM (PBSRAM) (depending on IMM).
- 8MB expandable up to 128MB.
- *8/16/32/64MB 144-pin SODIMM RAM modules (optional).*
**(The x4 bit DRAM chips are not supported.)*

System BIOS

- 256KB flash ROM.
- PCI 2.1.
- Plug and Play 1.0a.

Display

- 15.1"/14.1"/13.3" TFT XGA (1024x768 pixels) LCD panel available.
- 13.8" DSTN XGA (1024x768 pixels) LCD panel available.
- 4MB Synchronous Graphics RAM (SGRAM).
- Video Port Manager (VPM 1.10) for Zoomed Video (ZV) port.
- Simultaneous display with an external monitor.

Mass Storage

- 3.5" floppy disk drive (interchangeable).
- 2.5" hard disk drive (12.7mm high or less).
- 5.25" CD-ROM.
- *2.5" (12.7mm high or less) or 3.0" (12.5mm high or less) secondary hard disk drive (optional).*
- *100MB Zip drive (15mm high) (optional).*

PC Card Sockets

- CardBus support.
- One ZV-capable socket (Socket A).
- Two Type II PC cards or one Type III PC card.

Audio

- Sound Blaster Pro compatible.
- 3D stereo sound effects.
- Stereo full duplex support.
- 1MB ROM wavetable.
- Built-in microphone.
- Built-in speakers.

Input/Output

- Built-in trackpad (PS/2).
- Dual USB ports.
- S-video jack for TV output.
- 120-pin expansion port.
- RCA jack for video input.
- External monitor (CRT) port.
- Serial port.
- Parallel port.
- Dual PS/2 type ports.
- Speaker-out jack.
- Line-in jack.
- Microphone-in jack.

Infrared Wireless Communication

- IrDA (HPSIR).
- ASKIR.
- Fast IR.

Power Management

- APM 1.2.
- ACPI.
- Global Standby.
- Suspend and Resume.

AC Power Supply

- AC input: 100~240VAC, 47~63Hz.
- DC output: 20V.
- Total output: 50W.

Rechargeable Battery Pack

- Lithium-ion battery available.
- Battery low warning.

Size & Weight

- 357mm(w)x275mm(d)x50mm(h).
- 4.5kg.

I/O Address Map

Hex range	Device
000 – 00F	DMA controller-1
020 – 021	Interrupt controller-1
040 – 043	Timer 1
048 – 04B	Timer 2
060 – 06E	KB controller M38813 chip select
070 – 071	RTC and NMI mask
080 – 08F	DMA page register
0A0 – 0A1	Interrupt controller-2
0C0 – 0DF	DMA controller-2
1F0 – 1F7	Fixed disk select
3F6 , 3F7	
2F8 – 2FF	Serial port 2
378 – 37A	Parallel port 1
3B4 , 3B5	CRT controller index (mono)
3D4 , 3D5	CRT controller index (color)
3BA	Feature control
3C0 – 3DA	
3F2 – 3F7	Floppy disk controller
3F0 , 3F1	Configuration port
3F8 – 3FF	Serial port 1

System Memory Map

Address	Size	Function
000000 – 09FFFF	640KB	640KB Base Memory
0A0000 – 0BFFFF	128KB	Video RAM
0C0000 – 0CBFFF	48KB	VGA BIOS
0CC000 – 0DFFFF	80KB	Reserved
0E0000 – 0EFFFF	64KB	System BIOS for SCU, PCI, PnP, PMU
0F0000 – 0FFFFFF	64KB	System BIOS for Kernal
100000 –	16MB to 128MB	Extended Memory

Motherboard

The motherboard is designed IMM-based CPU Module and southbridge of Intel 82371EB (PIIX4E) chip; it includes the following features:

- ✓ 82371EB PIIX4E chipset solution from Intel.
- ✓ S3 M5+ Multimedia Flat Panel Controller.
- ✓ PCI Local Bus IDE interface.
- ✓ NS97338CR super I/O Floppy Disk Controller.
- ✓ M38867 Keyboard Controller.
- ✓ Flash EPROM 256KB with SystemSoft system BIOS, VGA BIOS.
- ✓ DRAM Upgradable to 128MB.
- ✓ 7 DMA channels.
- ✓ 13 interrupt levels.
- ✓ Real Time clock / calendar, battery back up.
- ✓ Built-in 3D Stereo Audio subsystem.
- ✓ Built-in NTSC/PAL video-out S-jack.
- ✓ Built-in Video-in RCA-jack.
- ✓ IrDA infrared communication (Fast IR).
- ✓ Port connectors :
 - 9 pin serial (COM1).
 - 25 pin parallel printer port (LPT1).
 - 15 pin external monitor port.
 - 6 pin external keyboard port.
 - 120 pin expansion port for Port Replicator.
 - 8 pin USB port.

Microprocessor

The Notebook Computer applied IMM base and MMX (LM) microprocessor.

P55C-150/166/200/233/266 (LM) Microprocessor

The IMM has an improved prefetch/BTB mechanism that is more accurate and is built-in MMX (MultiMedia eXtension enable) Technology Architecture.

Features included:

- ✓ Superscalar architecture.
- ✓ Separate code and data caches.
- ✓ Branch prediction.
- ✓ High performances floating point unit.
- ✓ Enhanced 64 bits data bus.
- ✓ Data integrity features.
- ✓ SL technology power management features.
- ✓ Multiprocessing support
- ✓ Performance monitoring.
- ✓ Memory page size feature.

Chips

Southbridge Chip – Intel 82371EB (PIIX4E)

- ✓ Support Kits for both Pentium and Pentium II Microprocessors.
- ✓ Multifunction PCI to ISA Bridge.
 - Support PCI at 30 and 33 MHz.
 - Support PCI Rev 2.1 Specification.
 - Support Full ISA or Extended I/O Bus.
- ✓ Support Mobile Deep Green Environments.
 - 3.3V Operation with 5V Tolerant Buffers.
 - Ultra-low Power for Mobile Environments Support.
- ✓ Full Support for ACPI (Advanced Configuration and Power Interface) Revision 1.0.
- ✓ Integrated IDE Controller.
 - Support Ultra DMA/33.
- ✓ Support two 82c37 Enhanced DMA Controller.
- ✓ Support two 82c59 Interrupt Controller.
- ✓ Support 82c54 Timer Based.
- ✓ Support UHCI USB Ports.
- ✓ Support SMBus.

VGA Controller – S3 M5+

The S3 M5+ Multimedia Flat Panel Controller is a DRAM based, fully integrated LCD, CRT & TV 64 bits controller for PCI systems. It contains the following functions:

- ✓ Support displays with options for 4 MB.
- ✓ 64bit high performance 2D / 3D Graphic Engine.
- ✓ Support bus master PCI and SGRAM memory.
- ✓ Support 16/24 bit color DSTNs up to 1024x768x16M color, and TFT panels up to 1280x1024x64K color.
- ✓ Support non-interlaced 1280x1024x64K, 1024x768x16M, 800x600x16M, and 640x480x16M color on CRT.
- ✓ Simultaneous display in 24 bit color on flat panel and CRT.
- ✓ Internal buffer provides flicker reduction.
- ✓ RGB signals driven from the S3 M5+ LUT/DAC can directly interface with a standard off-the-shelf NTSC/PAL encoder. Composite synchronization signals support for standard home TV connection.
- ✓ Graphic functions optimized by a 64 bit internal data bus and VGA, SVGA, XGA, and SXGA flat panel.
- ✓ Provide flexible and extensive power management capabilities and support four states of VESA Display Power Management Signaling.
- ✓ Industry leading DuoView Simultaneous display.
- ✓ Fully compliant ZV-port interface with device driver support for VPM.

PC Card 95 (CardBus) Interface Controller – T11220

The CardBus Interface Controller 1220 implements the PCMCIA 2.0/JEIDA 4.1 standard. It contains the following features:

- ✓ Support 2 PCMCIA 2.1 & JEIDA 4.2 R2 cards or 2 CardBus cards.
- ✓ Yenta Registers-compatible.
- ✓ Support Zoom Video Mode.
- ✓ PCMCIA dual-socket interface.
- ✓ One-Slot plus MPEG three Zoomed Video Ports support.
- ✓ Bus Master Transfer capability.
- ✓ Support both 5V and 3.3V PC cards.
- ✓ Support PCMCIA_ATA Specification.
- ✓ Support Advanced Submicron Low Power CMOS Technology.
- ✓ Support ACPI 1.0 Compliant.
- ✓ 208 pin TQFP package.

ZV Port Custom Interface

The ZV (Zoomed Video) Port is a single source, point-to-point uni-directional video bus between a PC card socket and a VGA controller. The ZV Port complies with CCIR601 timing to allow NTSC decoders to deliver real-time digital video straight into the VGA frame buffer from a PC card. The ZV Port also allows an industry standard mechanism for transferring digital audio PCM data to a low cost DAC for conversion to an analog signal.

Super I/O Floppy Disk Controller – NS97338CR

The NS's 97338CR super I/O is optimized for motherboard applications. It provides:

- ✓ Intelligent Auto Power Management.
- ✓ 16 Bit Address Qualification.
- ✓ 2.88MB Super I/O Floppy Disk Controller
 - Support Vertical Recording Format.
 - 16 Byte Data FIFO.
 - Enhanced Digital Data Separator. Data rate up to 1Mb/s.
- ✓ Multi-Mode Parallel Port with ChiProtect Circuitry
 - Standard Mode
IBM PC/AT and PS/2 compatible bi-directional Parallel port.
 - Enhanced Mode
Enhanced Parallel Port (EPP) compatible.
 - High Speed Mode
Microsoft and Hewlett Packard Extended Capabilities Port (ECP) compatible.
- ✓ Serial Port
 - Two high speed NS16C550A compatible UARTs with Send/Receive 16 Byte FIFOs.
 - Programmable Baud Rate Generator.
 - Modem Control Circuitry.
 - Infrared-IrDA, HPSIR, ASKIR, Fast IR (4Mbps IrDA), Consumer IR Support.

High Quality Audio Chip – ESS ES1879

- ✓ Integrated 3D audio effects.
- ✓ Stereo full-duplex using two DMA channels.
- ✓ Single, mixed-signal, 16-bit stereo VLSI chip for digital audio.
- ✓ High-quality, 20-voice ESFM music synthesizer patents pending.
- ✓ Full Plug and Play.

RGB to NTSC/PAL Encoder in M5+

- ✓ TrueScal rendering engine supports underscan to display VGA mode.
- ✓ Advanced flicker filtering.
- ✓ Programmable power management.
- ✓ Support both NTSC and PAL TV format.

Real PCI to USB (UHCI) Chip – Intel 82371AB PIIX4

- ✓ Two USB 1.0 ports for serial transfers at 12 or 1.5Mbit/sec.
- ✓ Support legacy keyboard and mouse.
- ✓ Support UHCI design guide revision 1.1 interface.

Keyboard Controller – M38867M8

- ✓ Memory size: 1024 bytes (RAM).
- ✓ Timers: 8 bit prescaler x 4 + 8 bit timer x 3.
- ✓ Comparator: 4 bit x 8 channels.
- ✓ Bus interface: 2 bytes.
- ✓ Key on wake-up: 8 channels.
- ✓ Interrupts: 8 external, 7 internal, and 1 software.
- ✓ A-D converter: 8 channels.
- ✓ D-A converter: 2 channels.
- ✓ PWM: 2 channels.
- ✓ System bus interface: 8042 type.

L2 Cache Size

Cache Size	Data RAM	Tag RAM	Cacheable Size (8-bits tag)
256KB	32Kx32x2	32Kx8	64MB
512KB	64Kx32x2	32Kx8	64MB

L2 Cache Speed

Pipeline burst SRAM

Cache Configuration	60MHz (tag/data)	66MHz (tag/data)
Read 3-1-1-1 Write 3-1-1-1	12ns/9ns	12ns/9ns

DRAM Speed

The speed ratings of DRAM for various CPU external clock rates are listed below (using 1Mx16 or 2Mx8 memory):

DRAM Speed	60MHz (clocks)	66MHz (clocks)
60ns	read x-4-4-4	write x-4-4-4
60ns	read x-3-3-3	write x-3-3-3
60ns	write x-2-2-2	write x-2-2-2

FPM/EDO : use 60ns or faster DRAM

SDRAM : use 75MHz or faster DRAM

Pin Configurations

Floppy Disk Drive Interface

Pin	Description	Pin	Description
1	VCC	31	VCC
2	MTR0#	32	DRV0#
3	3MODE#	33	INDEX#
4	TRK0#	34	DSKCHG#
5	HDSEL#	35	DIR#
6	RDATA#	36	STEP#
7	WP FD#	37	WDAT#
8	WGATE#	38	N.C
9	CDRST#	39	GND
10	DDS7	40	DDS8
11	DDS6	41	DDS9
12	DDS5	42	DDS10
13	DDS4	43	DDS11
14	DDS3	44	DDS12
15	DDS2	45	DDS13
16	DDS1	46	DDS14
17	DDS0	47	DDS15
18	GND	48	N.C
19	SDREQ	49	GND
20	SDIOW#	50	GND
21	SDIOR#	51	GND
22	SIORDY	52	CSEL
23	SDACK#	53	GND
24	CD IRQ	54	N.C
25	SDA1	55	PDIAG
26	SDA0	56	SDA2
27	CS1S#	57	CS3S#
28	SHD LED#	58	GND
29	CD VCC	59	CD VCC
30	GND	60	N.C

Hard Disk Drive Interface

The Notebook PC has a standard PC/AT interface (IDE) which can directly interface with any hard disk drive with an embedded controller supporting the same PC/AT interface through the use of a 50-pin B/B connector. The connector has the following pin configurations:

Pin	Description	Pin	Description
1	GND	26	GND
2	GND	27	GND
3	HDRST#	28	GND
4	DDP7	29	DDP8
5	DDP6	30	DDP9
6	DDP5	31	DDP10
7	DDP4	32	DDP11
8	DDP3	33	DDP12
9	DDP2	34	DDP13
10	DDP1	35	DDP14
11	DDP0	36	DDP15
12	GND	37	N.C
13	PDREQ	38	GND
14	PDIOW#	39	GND
15	PDIOR#	40	GND
16	PIORDY	41	CSEL
17	PDACK#	42	GND
18	IRQ14	43	N.C
19	PDA1	44	N.C
20	PDA0	45	PDA2
21	CS1P#	46	CS3P#
22	PHD LED#	47	GND
23	HDD VCC	48	HDD VCC
24	GND	49	N.C
25	N.C	50	N.C

RS-232C Serial Interface

The Notebook PC has one RS-232C serial port which enables users to connect a serial printer, a serial mouse, a plotter, a modem, etc. The key features of the serial port are listed as follows:

- ✓ IBM PC/AT compatible.
- ✓ Compatible with NS16C550.
- ✓ Individual modem control/signals for each channel.
- ✓ Programmable serial interface characteristics:
 - 5-, 6-, 7-, or 8-bit characters.
 - Even, odd, or no parity bit generation and detection.
 - 1, 1 ½, or 2 stop bit generation.
 - Tri-state TTL drives capabilities for bi-directional data bus and control bus.

The RS-232C serial port uses a 9-pin D-sub male connector which has the following pin configurations:

Pin	Description
1	DCD (DATA Carrier Detect)
2	RXD (Received Data)
3	TXD (Transmitted Data)
4	DTR (Data Terminal Ready)
5	GND (Signal Ground)
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	RI (Ring Indicator)

Parallel Interface

The parallel interface is implemented through using a 25-pin D-sub female connector which has the following pin configurations:

Pin	Description	Pin	Description
1	Strobe#	2	Data 0
3	Data 1	4	Data 2
5	Data 3	6	Data 4
7	Data 5	8	Data 6
9	Data 7	10	ACK#
11	Busy	12	Paper Empty
13	Select	14	Auto Linefeed#
15	Error#	16	Initialize#
17	Select In	18	Ground
19	Ground	20	Ground
21	Ground	22	Ground
23	Ground	24	Ground
25	Ground		

Expansion Memory Socket

The Notebook PC has two 144-pin SODIMM type Expansion memory sockets with the following pin configurations:

Socket 1:

Pin	Description	Pin	Description	Pin	Description	Pin	Description
1	GND	2	GND	3	MD0	4	MD32
5	MD1	6	MD33	7	MD2	8	MD34
9	MD3	10	MD35	11	MEM-VCC	12	MEM-VCC
13	MD4	14	MD36	15	MD5	16	MD37
17	MD6	18	MD38	19	MD7	20	MD39
21	GND	22	GND	23	ICAS#0	24	ICAS#4
25	ICAS#1	26	ICAS#5	27	MEM-VCC	28	MEM-VCC
29	IMA0	30	IMA3	31	IMA1	32	IMA4
33	IMA2	34	IMA5	35	GND	36	GND
37	MD8	38	MD40	39	MD9	40	MD41
41	MD10	42	MD42	43	MD11	44	MD43
45	MEM-VCC	46	MEM-VCC	47	MD12	48	MD44
49	MD13	50	MD45	51	MD14	52	MD46
53	MD15	54	MD47	55	GND	56	GND
57	N.C	58	N.C	59	N.C	60	N.C
61	MEMCLK1	62	ICKEA	63	MEM-VCC	64	MEM-VCC
65	SRAS#A	66	SCAS#A	67	IMWE#A	68	ICKEA
69	IRAS#0	70	IMA12	71	IRAS#1	72	IMA13
73	GND	74	MEMCLK2	75	GND	76	GND
77	N.C	78	N.C	79	N.C	80	N.C
81	MEM-VCC	82	MEM-VCC	83	MD16	84	MD48
85	MD17	86	MD49	87	MD18	88	MD50
89	MD19	90	MD51	91	GND	92	GND
93	MD20	94	MD52	95	MD21	96	MD53
97	MD22	98	MD54	99	MD23	100	MD55
101	MEM-VCC	102	MEM-VCC	103	IMA6	104	IMA7
105	IMA8	106	IMA11	107	GND	108	GND
109	IMA9	110	IMA12	111	IMA10	112	N.C
113	MEM-VCC	114	MEM-VCC	115	ICAS#2	116	ICAS#6
117	ICAS#3	118	ICAS#7	119	GND	120	GND
121	MD24	122	MD56	123	MD25	124	MD57
125	MD26	126	MD58	127	MD27	128	MD59
129	MEM-VCC	130	MEM-VCC	131	MD28	132	MD60
133	MD29	134	MD61	135	MD30	136	MD62
137	MD31	138	MD63	139	GND	140	GND
141	SDA RA	142	SCL RA	143	MEM-VCC	144	MEM-VCC

Socket 2:

Pin	Description	Pin	Description	Pin	Description	Pin	Description
1	GND	2	GND	3	MD0	4	MD32
5	MD1	6	MD33	7	MD2	8	MD34
9	MD3	10	MD35	11	MEM-VCC	12	MEM-VCC
13	MD4	14	MD36	15	MD5	16	MD37
17	MD6	18	MD38	19	MD7	20	MD39
21	GND	22	GND	23	ICAS#0	24	ICAS#4
25	ICAS#1	26	ICAS#5	27	MEM-VCC	28	MEM-VCC
29	IMA0	30	IMA3	31	IMA1	32	IMA4
33	IMA2	34	IMA5	35	GND	36	GND
37	MD8	38	MD40	39	MD9	40	MD41
41	MD10	42	MD42	43	MD11	44	MD43
45	MEM-VCC	46	MEM-VCC	47	MD12	48	MD44
49	MD13	50	MD45	51	MD14	52	MD46
53	MD15	54	MD47	55	GND	56	GND
57	N.C	58	N.C	59	N.C	60	N.C
61	MEMCLK3	62	ICKEA	63	MEM-VCC	64	MEM-VCC
65	SRAS#B	66	SCAS#B	67	IMWE#B	68	ICKEA
69	IRAS#2	70	IMA12	71	IRAS#3	72	IMA13
73	GND	74	MEMCLK4	75	GND	76	GND
77	N.C	78	N.C	79	N.C	80	N.C
81	MEM-VCC	82	MEM-VCC	83	MD16	84	MD48
85	MD17	86	MD49	87	MD18	88	MD50
89	MD19	90	MD51	91	GND	92	GND
93	MD20	94	MD52	95	MD21	96	MD53
97	MD22	98	MD54	99	MD23	100	MD55
101	MEM-VCC	102	MEM-VCC	103	IMA6	104	IMA7
105	IMA8	106	IMA11	107	GND	108	GND
109	IMA9	110	IMA12	111	IMA10	112	N.C
113	MEM-VCC	114	MEM-VCC	115	ICAS#2	116	ICAS#6
117	ICAS#3	118	ICAS#7	119	GND	120	GND
121	MD24	122	MD56	123	MD25	124	MD57
125	MD26	126	MD58	127	MD27	128	MD59
129	MEM-VCC	130	MEM-VCC	131	MD28	132	MD60
133	MD29	134	MD61	135	MD30	136	MD62
137	MD31	138	MD63	139	GND	140	GND
141	SDA RB	142	SCL RB	143	MEM-VCC	144	MEM-VCC

Port Replicator Connector Pin Assignment

Pin	Description	Pin	Description	Pin	Description
1	GND	2	GND	3	GND
4	USBP1+	5	GND	6	USBP1-
7	GND	8	USBP0+	9	GND
10	USBP0-	11	VCCS	12	VCCS
13	GND	14	XLUMA	15	GND
16	XCRMA	17	GND	18	VIDEO IN
19	GND	20	RED	21	BLUE
22	GREEN	23	GND	24	DVSYNC
25	GND	26	DHSYNC	27	GND
28	DDCDA	29	DDCLK	30	N.C
31	A++	32	A++	33	A++
34	N.C	35	N.C	36	PD0
37	PD1	38	PD2	39	PD3
40	PD4	41	PD5	42	PD6
43	PD7	44	PSTB#	45	PSLIN#
46	PSLCT	47	PINIT#	48	PATFD#
49	PACK#	50	PBUSY	51	PPE
52	PPERR#	53	N.C	54	FB0
55	FB0	56	FB0	57	MSOUT
58	MSI692	59	GND	60	GND
61	GND	62	GND	63	GND
64	RIA	65	DTRA	66	CTSA
67	SOUTA	68	RTSA	69	GND
70	SINA	71	DSRA	72	DCDA
73	N.C	74	N.C	75	CCO
76	CCO	77	CCO	78	N.C
79	SOUT2	80	RTS2#	81	DTR2#
82	COM2RI	83	COMSTBY#	84	DSR2#
85	RI2#	86	CTS2#	87	SIN2
88	DCD2#	89	N.C	90	N.C
91	A++	92	A++	93	A++
94	N.C	95	N.C	96	GND
97	SUSB#	98	GND	99	EKDA
100	EKCLK	101	GND	102	GND
103	EMDA	104	EMCLK	105	VCC
106	VCC	107	SWA	108	SWB
109	SWC	110	SWD	111	GND
112	GND	113	GTA	114	GTB
115	GTC	116	GTD	117	DPWROK
118	GND	119	GND	120	GND

Internal Trackpad Interface

There is a connector used to interface with the internal trackpad. It will be disabled when external mouse has been installed. The trackpad is hardware-connected to PS/2 port, hardware-compatible to Microsoft PS/2 mouse and software-compatible to Microsoft mouse mode. The following is the pin configurations for the connector:

Pin	Description
1	VCC
2	IMDATA
3	IMCLK
4	GND

External Monitor Interface

Pin	Description
1	BRED
2	BGREEN
3	BBLUE
4	N.C
5	GND
6	GND
7	GND
8	GND
9	N.C
10	GND
11	N.C
12	DDCDA
13	DHSYNC
14	DVSYNC
15	DDCLK

RGB Out

Output Impedance : 75Ω
RGB peak voltage : 0.7Vpp

External Keyboard Interface

Pin	Description
1	EKDA
2	N.C
3	GND
4	VCC
5	EKCLK
6	N.C

External PS2 Mouse Interface

Pin	Description
1	EMDA
2	N.C
3	GND
4	VCC
5	EMCLK
6	N.C

External S-video TV-out Interface

Pin	Description
1	GND
2	GND
3	XLUMA
4	XCRMA

Video-in Interface

Pin	Description
1	Video-In
2	GND

External USB (Universal Serial Bus) Interface

Port A:

Pin	Description
1	USB VCCA
2	USBP0-
3	USBP0+
4	GND

Port B:

Pin	Description
1	USB VCCB
2	USBP1-
3	USBP1+
4	GND

PCMCIA CardBus Interface

Socket A:

Pin	Description	Pin	Description	Pin	Description
1	GND	35	GND	69	GND
2	A - CD3	36	A - CA5	70	A - CA19
3	A - CD4	37	A - CA4	71	A - CA20
4	GND	38	GND	72	GND
5	A - CD5	39	A - CA3	73	A - CA21
6	A - CD6	40	A - CA2	74	A - VCC - C
7	GND	41	GND	75	GND
8	A - CD7	42	A - CA1	76	GND
9	A - CE1#	43	A - CA0	77	A - VPP
10	GND	44	GND	78	A - CA22
11	A - CA10	45	A - CD0	79	GND
12	A - OE#	46	A - CD1	80	A - CA23
13	GND	47	GND	81	A - CA24
14	A - CA11	48	A - CD2	82	GND
15	A - CA9	49	A - WP#	83	A - CA25
16	GND	50	GND	84	A - VS2
17	A - CA8	51	GND	85	GND
18	A - CA13	52	A - CD1#	86	A - RESET
19	GND	53	A - CD11	87	A - WAIT#
20	A - CA14	54	GND	88	GND
21	A - WE#	55	A - CD12	89	A - INPACK
22	GND	56	A - CD13	90	A - REG#
23	A - RDYBY#	57	GND	91	GND
24	A - VCC - C	58	A - CD14	92	A - BVD2#
25	GND	59	A - CD15	93	A - BVD1#
26	GND	60	GND	94	GND
27	A - VPP	61	A - CE2#	95	A - CD8
28	A - CA16	62	A - VS1	96	A - CD9
29	GND	63	GND	97	GND
30	A - CA15	64	A - IORD#	98	A - CD10
31	A - CA12	65	A - IOWR#	99	A - CD2#
32	GND	66	GND	100	GND
33	A - CA7	67	A - CA17		
34	A - CA6	68	A - CA18		

Socket B:

Pin	Description	Pin	Description	Pin	Description
1	GND	35	GND	69	GND
2	B - CD3	36	B - CA5	70	B - CA19
3	B - CD4	37	B - CA4	71	B - CA20
4	GND	38	GND	72	GND
5	B - CD5	39	B - CA3	73	B - CA21
6	B - CD6	40	B - CA2	74	B - VCC - C
7	GND	41	GND	75	GND
8	B - CD7	42	B - CA1	76	GND
9	B - CE1#	43	B - CA0	77	B - VPP
10	GND	44	GND	78	B - CA22
11	B - CA10	45	B - CD0	79	GND
12	B - OE#	46	B - CD1	80	B - CA23
13	GND	47	GND	81	B - CA24
14	B - CA11	48	B - CD2	82	GND
15	B - CA9	49	B - WP#	83	B - CA25
16	GND	50	GND	84	B - VS2
17	B - CA8	51	GND	85	GND
18	B - CA13	52	B - CD1#	86	B - RESET
19	GND	53	B - CD11	87	B - WAIT#
20	B - CA14	54	GND	88	GND
21	B - WE#	55	B - CD12	89	B - INPACK
22	GND	56	B - CD13	90	B - REG#
23	B - RDYBY#	57	GND	91	GND
24	B - VCC - C	58	B - CD14	92	B - BVD2#
25	GND	59	B - CD15	93	B - BVD1#
26	GND	60	GND	94	GND
27	B - VPP	61	B - CE2#	95	B - CD8
28	B - CA16	62	B - VS1	96	B - CD9
29	GND	63	GND	97	GND
30	B - CA15	64	B - IORD#	98	B - CD10
31	B - CA12	65	B - IOWR#	99	B - CD2#
32	GND	66	GND	100	GND
33	B - CA7	67	B - CA17		
34	B - CA6	68	B - CA18		

LCD Interface

Connector A:

Pin	Description	Pin	Description
1	GND	31	GND
2	GND	32	GND
3	PP0	33	PP1
4	PP2	34	PP3
5	PP4	35	PP5
6	PP6	36	PP7
7	PP8	37	PP9
8	PP10	38	PP11
9	PP12	39	PP13
10	PP14	40	PP15
11	PP16	41	PP17
12	PP18	42	PP19
13	PP20	43	PP21
14	BATCHA	44	BATFULL
15	GND	45	GND
16	PP22	46	PP23
17	VCC	47	VCC
18	VCC	48	VCC
19	PP24	49	PP25
20	PP26	50	PP27
21	VCC3	51	VCC3
22	VCC3	52	VCC3
23	M	53	LP
24	LCDVDD	54	FLM
25	CONTADJ	55	LCD ADJ
26	LCDVDD	56	LCDVDD
27	LCDVDD	57	LCDVDD
28	SHFCLK	58	SHFCLK
29	GND	59	GND
30	ACIN	60	ENAVEE

Connector B:

Pin	Description	Pin	Description
1	GND	31	GND
2	LID	32	MIC
3	N.C	33	N.C
4	B+	34	B+
5	N.C	35	N.C
6	BRIGADJ	36	ENABKKL
7	AB VCC	37	AB VCC
8	AB VCC	38	AB VCC
9	PP35	39	PP34
10	PP33	40	PP32
11	PP31	41	PP30
12	PP29	42	PP28
13	AA VCC	43	AA VCC
14	AA VCC	44	AA VCC
15	PNLDOWN#	45	SUPV
16	GND	46	GND
17	BATON	47	BAT BEEP
18	EXT RES	48	EXT RES
19	TxPVCC	49	TxPVCC
20	VD15	50	VD14
21	100DVCC	51	100DVCC
22	VD13	52	VD12
23	TxAVCC	53	TxAVCC
24	TxAVCC	54	TxAVCC
25	HALFCK	55	TEST
26	TxVCC	56	TxVCC
27	TxVCC	57	TxVCC
28	CEDGE	58	DEEDGE
29	GND	59	GND
30	GND	60	GND

Internal ISA Interface (for *Optional* Modem/LAN)

Pin	Description	Pin	Description
1	RSTDRV	31	MODEM
2	SD0	32	SD1
3	SD2	33	SD3
4	SD4	34	SD5
5	SD6	35	SD7
6	N.C	36	AGND
7	VCCS	37	AUXBR
8	VCCS	38	AGND
9	VCCS	39	VCCA
10	AGND	40	VCCA
11	MIC IN	41	N.C
12	AGND	42	+12V
13	IORD#	43	AEN
14	IOWR#	44	IRQ10
15	IRQ3	45	IRQ11
16	IRQ4	46	IRQ12
17	IRQ5	47	GND
18	IRQ9	48	OSC4
19	SA0	49	SA1
20	SA2	50	SA3
21	SA4	51	SA5
22	SA6	52	SA7
23	SA8	53	SA9
24	SA10	54	SA11
25	SA12	55	SA13
26	SA14	56	SA15
27	GND	57	GND
28	N.C	58	N.C
29	N.C	59	N.C
30	--	60	--

PCI BUS Interface (for *Optional* MPEG-II)

Pin	Description	Pin	Description
1	B_VSYNC	2	B_HREF
3	B UV0	4	B UV1
5	B UV2	6	B UV3
7	B UV4	8	B UV5
9	B UV6	10	VCC
11	B UV7	12	B Y0
13	AD0	14	AD1
15	AD2	16	AD3
17	AD4	18	AD5
19	AD6	20	AD7
21	AD8	22	AD9
23	AD10	24	AD11
25	AD12	26	AD13
27	AD14	28	GND
29	MPEGCLK	30	GND
31	REQ#2	32	GNT#2
33	STOP#	34	CBE#0
35	CBE#1	36	PAR
37	PERR#	38	DEVSEL#
39	SERR#	40	GND
41	B Y1	42	B Y2
43	B Y3	44	B Y4
45	B Y5	46	B Y6
47	B Y7	48	B SDATA
49	B PCLK	50	VCC3
51	B MCLK	52	GND
53	B SCLK	54	B LRCLK
55	AD15	56	AD16
57	AD17	58	AD18
59	AD19	60	AD20
61	AD21	62	AD22
63	AD23	64	AD24
65	AD25	66	AD26
67	AD27	68	AD28
69	AD29	70	AD30
71	AD31	72	INTA#
73	INTB#	74	CBE#2
75	CBE#3	76	IRDY#
77	TRDY#	78	FRAME#
79	PRST#	80	GND

Inverter Board

1. 15.1" LCD Panel : 8500H and 8500V Inverter module.
2. 13.8" LCD Panel : 8500R Inverter module.
3. 8500V : Delete LED and REED Switch.
4. DIP 15-pin connector: (Pin Assignment)
 1. B+ : DC Input
 2. GND
 3. BRIGADJ : Brightness Adjustment
 4. BKLO : Backlight On/Off Control
 5. BATFULL : LED1 Green
 6. BATCHA : LED1 Red
 7. BAT_BEEP : LED1 Red Blinking
 8. ACIN : LED2 Red
 9. BAT ON : LED2 Green
 10. LID : PIN2 to GND
5. Lamp Current
2.5V \pm 0.5 mA ~ 6.0 \pm 0.4 mA rms
6. Lamp Voltage
510 Vrms @ IL = 4 mA
590 Vrms @ IL = 6 mA
7. Starting Voltage
1300 Vrms @ 0°C
8. Freq. 30 ~ 60 KHz
9. BRIGADJ (Brightness) : 0 ~ 2.5V
10. B+ : 8 ~ 21V
11. BKLO : 3.3V (On) ; 0V (Off)
12. Temperature Rise:
Temperature Rise under 30°C
Max. operation temperature 65°C
13. HI-Voltage Insulation

Setting DIP Switch

Locate the DIP Switch (SW1) to set the correct configuration for the following purpose:

 Flash ROM BIOS update

DIP Switch (SW1)		Purpose
SW1-1	SW1-2	Flash ROM BIOS
Off	Off	Existing BIOS
On	On	Updating BIOS

System Resource Allocation

IRQ:

IRQ 0: System timer

IRQ 1: Keyboard

IRQ 2: Cascade to 2nd 8259

IRQ 3: COM2

IRQ 4: COM1

IRQ 5: Audio

IRQ 6: Floppy

IRQ 7: Printer

IRQ 8: RTC alarm

IRQ 9: SCI. (ACPI), PCIIRQ router (PCI interrupt) (may share with SCI)

IRQ 10: Legacy PCMCIA CSC/functional interrupt, PCI router (PCI interrupt)

IRQ 11: Legacy PCMCIA CSC/functional interrupt, PCI router (PCI interrupt)

IRQ 12: PS2 mouse

IRQ 13: FPU

IRQ 14: Primary IDE (HDD)

IRQ 15: Secondary IDE (CD-ROM/2nd HDD/LS-120/Zip/MO)

DMA:

DMA1, 5: Audio chip (full duplex)

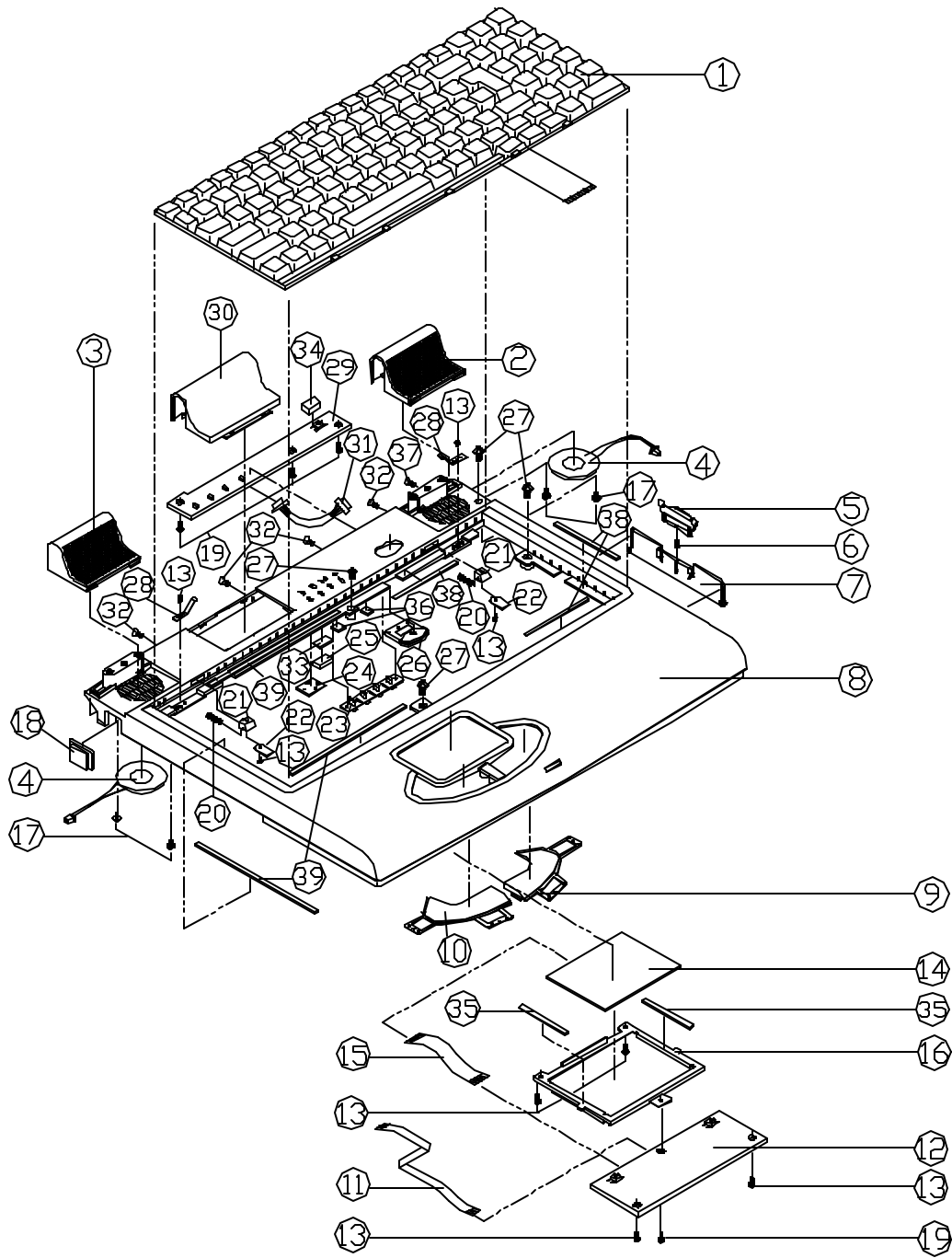
DMA 0: LPT (ECP mode)

DMA 2: FDC

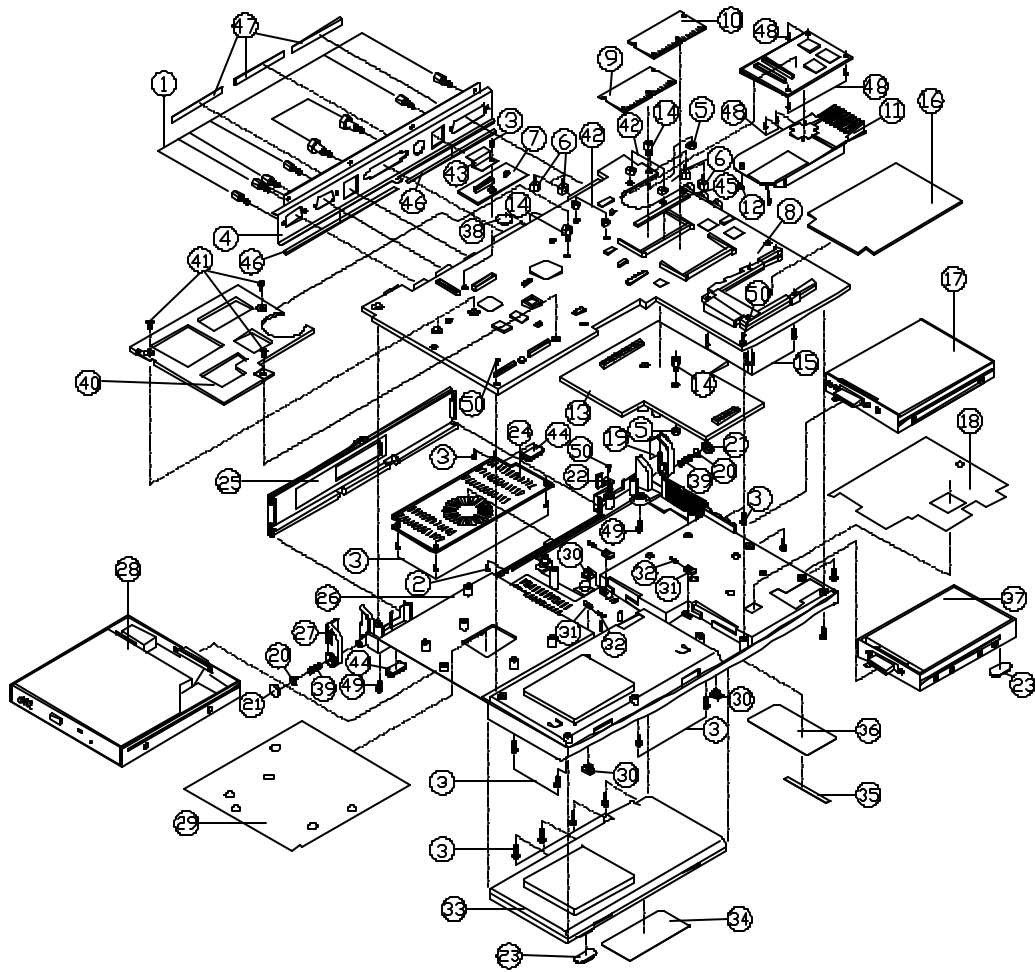
DMA 3: FIR

DMA 6, 7: DMA PC card of PCMCIA controller (PC/PCI DMA)

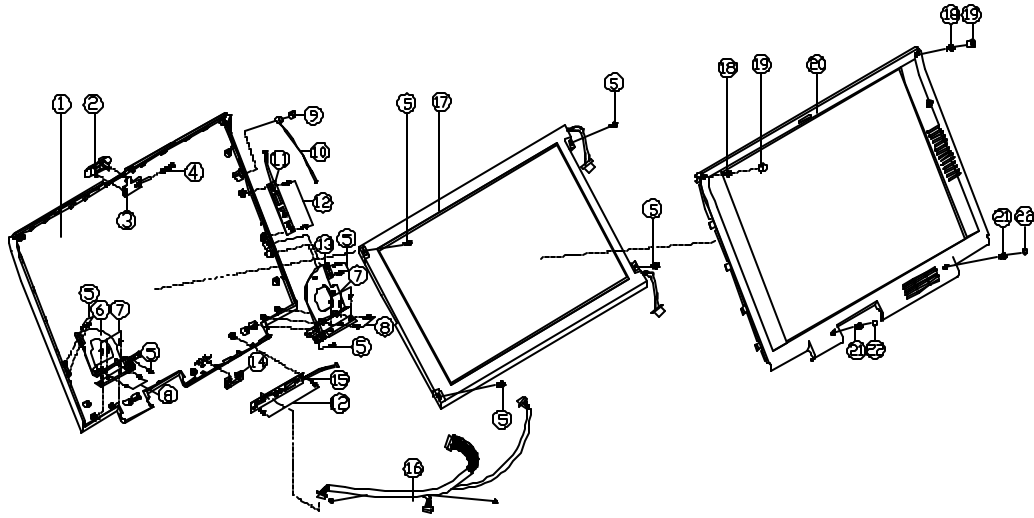
System Block Diagram



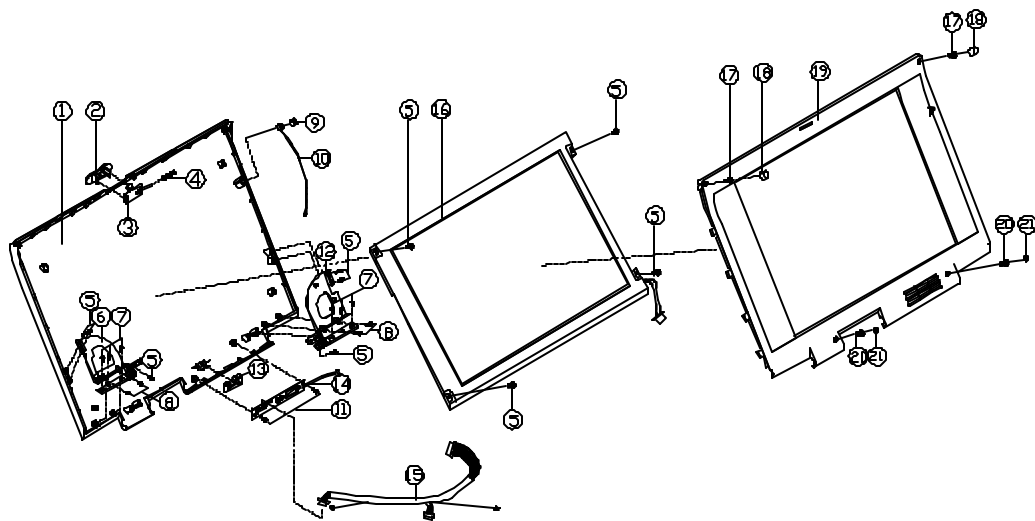
ITEM	PART NAME	PART NO	REMARK
1	KEYBOARD FOR 8500	80-85008-7G0	
2	SPEAKER COVER (R)+NET	33-8500T-A10	
3	SPEAKER COVER (L)+NET	33-8500T-A20	
4	SPEAKER	23-C4020-801	
5	COVER KNOB POM	42-62082-010	
6	SPRING FOR COVER KNOB	38-62020-020	
7	CARD BUS COVER	42-8507P-010	
8	TOP CASE	39-85012-01D	
9	GLIDE POINT KNOB (R)	42-85082-011	
10	GLIDE POINT KNOB (L)	42-85082-021	
11	FFC CABLE	27-9350C-850	
12	SWITCH BOARD	77-8500S-D02	
13	SCREW	35-41120-3RA	
14	GLIDE POINT LOGTECH	87-62070-080	
15	FFC CABLE	27-9350C-B50	
16	GLIDE PAD HOLDER	33-85002-010	
17	SCREW	35-41025-4RA	
18	IR LENS	42-850I2-010	
19	SCREW	35-06120-6RA	
20	SPRING FOR K/B LOCK KNOB	38-00R26-010	
21	K/B LOCK KNOB	42-85082-030	
22	K/B LOCK BRACKET	33-66002-020	
23	LED LENS(L)	42-85001-020	
24	MAGNET HOLDER	42-35032-010	
25	MAGNET	34-72002-011	
26	POWER KNOB	42-85084-010	
27	SCREW	35-06125-6RA	
28	K/B SPRING PLATE	38-35020-010	
29	LED BOARD	77-85004-D01	
30	CONNECTOR COVER	42-85072-010	
31	CABLE	28-77B10-600	
32	SCREW	35-26130-6RA	
33	SPONGE FOR HOLDER	47-85092-050	
34	SPONGE FOR LED BOARD	47-85092-040	
35	SPONGE FOR GLIDE PAD BRACKET	47-85092-060	
36	SPONGE FOR LENS(L)	47-72092-020	
37	SCREW	35-22120-5R0	
38	EMI SPONGE FOR K/B(2)	47-35097-020	
39	SHIELD SPONGE(A) FOR REAR BRK	47-85093-051	



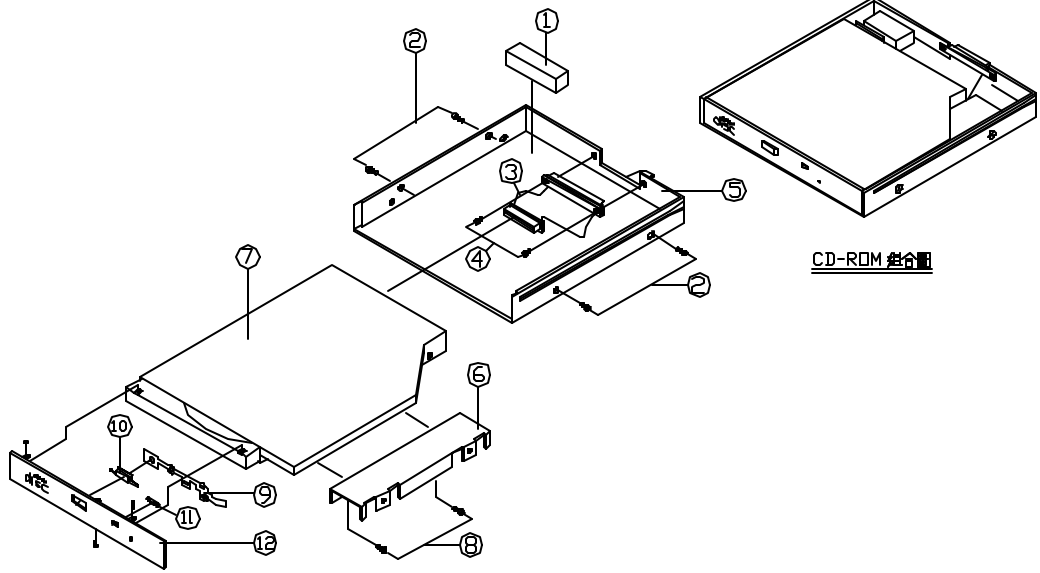
ITEM	PART NAME	PART NO	REMARK
1	HEX STUD	34-07009-011	
2	SCREW	35-26130-6RA	
3	SCREW	35-06125-6RA	
4	REAR BRACKET	33-8500Q-011	
5	NUT NI M2.5,SN	36-05111-250	
6	HEX STUD	34-3500S-010	
7	DATA BOARD 15.1T	77-85MTZ-D01-A	HDSIDEN
7	DATA BOARD 13.8DSTN	77-85M0Z-D01	KYOCERA
7	DATA BOARD 13.3T	77-85MTZ-D01-B	SAM/HDS
8	MAIN BOARD	77-85M00-D01	
9	EDO RAM CARD 8M 3.3V	77-7202T-270	
9	EDO RAM CARD 16M 3.3V	77-7202T-470	
9	EDO RAM CARD 32M 3.3V	77-7207T-870	
9	EDO RAM CARD 64M 3.3V	77-7207T-A70	
10	SDRAM CARD 8M	77-7202U-273	
10	SDRAM CARD 16M	77-7202U-473	
10	SDRAM CARD 64M	77-3508U-A70	
11	HEAT SINK ASS'Y	31-85M0N-010	
12	SCREW	35-41120-10A	
13	DC/DC	77-85M0C-D01	
14	HEX STUD	34-8500S-020	
15	SCREW	35-41120-14A	
16	MYLAR FOR CARD BUS	40-85053-030	
17	FDD ASS'Y 8500	79-8502J-010	(99-85005-050)
18	MYLAR(B)	40-85053-020	
19	FOOT(R)	42-85063-010	
20	SCREW	35-41025-4RA	
21	FOOT RUBBER	47-85013-010	
22	LOCK BRACKET	33-85003-020	
23	BOTTOM CASE RUBBER PAD	47-35023-010	
24	CPU COVER	42-85M73-010	
25	REAR COVER ASS'Y	42-8507Q-001	
26	BOTTOM CASE	39-85013-01C	
27	FOOT(L)	42-85063-020	
28	CD-ROM ASS'Y 8500	79-8502Z-010	(99-85005-070)
29	MYLAR (A)	40-85053-010	
30	BATTERY LOCK KNOB	42-6208M-010	
31	HDD LOCK	42-85083-010	
32	LOCK KNOB SPRING	38-62026-010	
33	BATTERY PACK ASS'Y	79-3500M-416	
33	BATTERY PACK ASS'Y	79-350SM-416	
34	LABEL FOR BATTERY	45-3500M-010	
35	FCC DDC LABEL	45-85M03-020	
36	FCC DDC LABEL 8500	45-85003-010	
37	HDD ASS'Y 8500	79-8502I-010	(99-85005-060)
38	MYLAR FOR BATTERY	40-8505M-010	
39	FOOT SPRING	38-85026-010	
40	K/B SUPPORTER	33-85007-010	
41	SCREW	35-26125-5RA	
42	NUT NI M2.0,SN	36-05111-200	
43	BRACKET FOR DATA BOARD CONNECTOR	33-85003-010	
44	BOTTOM CASE RUBBER PAD	47-85M23-010	
45	MYLAR FOR DIMM	40-8505S-010	
46	SHIELD SPONGE(A) FOR REAR BRK TO BOTTOM	47-85093-051	
47	SHIELD SPONGE(B) FOR REAR BRK TO BOTTOM	47-85093-061	
48	SCREW	35-01120-4RA	
49	SCREW	35-06130-6RA	
50	SCREW	35-41125-4RA	



ITEM	PART NAME	PART NO	REMARK
1	DISPLAY BACK PANEL(15.1T)	39-85201-02A	HOSIDEN
2	HOOK KNOB	42-35081-010	
3	DISPLAY HOOK	42-850A1-010	
4	SPRING FOR HOOK	38-100R4-020	
5	SCREW	35-41130-6RA	
6	HINGE (L)	79-8500Y-020	
7	SCREW	35-46130-6RA	
8	SCREW	35-41120-4RA	
9	MIC RUBBER	47-91023-010	
10	MIC + CABLE	23-E0610-22M	
11	INVERTER MODULE(15.1T)	76-850TR-V10	TFT-V
12	SCREW	35-41120-3RA	
13	HINGE (R)	79-8500Y-010	
14	LED LENS FOR BACK PANEL	42-85001-010	
15	INVERTER MODULE(15.1T)	76-850TR-H10	TFT-H
16	CABLE	28-77B31-N40	
17	LCD (15.1')	50-L6710-63H	HOSIDEN
18	SCREW	35-01120-4R0	
19	DISPLAY RUBBER PAD (UP)	47-52021-010	
20	DISPLAY FRONT PANEL(15.1T)	39-85201-01A	
21	SCREW	35-06130-6RA	
22	DISPLAY RUBBER PAD (BOTTOM)	47-85021-010	

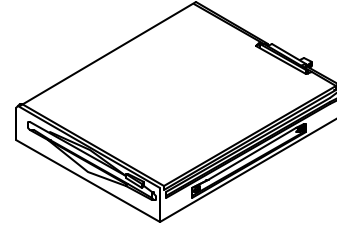
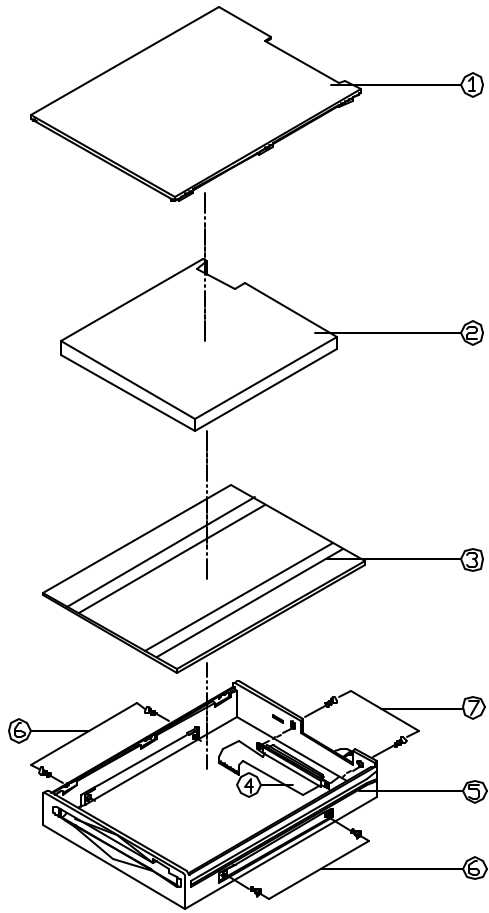


ITEM	PART NAME	PART NO	REMARK
1	DISPLAY BACK PANEL<13.8D>	39-85001-02A	KYOCERA
2	HOOK KNOB	42-35081-010	
3	DISPLAY HOOK	42-850A1-010	
4	SPRING FOR HOOK	38-100R4-020	
5	SCREW	35-41130-6RA	
6	HINGE (L)	79-8500Y-020	
7	SCREW	35-46130-6RA	
8	SCREW	35-41120-4RA	
9	MIC RUBBER	47-91023-010	
10	MIC + CABLE	23-E0610-22M	
11	SCREW	35-41120-3RA	
12	HINGE (R)	79-8500Y-010	
13	LED LENS FOR BACK PANEL	42-85001-010	
14	INVERTER MODULE<15.1" >	76-850TR-D10	TFT-H
15	CABLE	28-77B51-131	
16	LCD (13.8")	50-K5810-63K	KYOCERA
17	SCREW	35-01120-4R0	
18	DISPLAY RUBBER PAD (UP)	47-52021-010	
19	DISPLAY FRONT PANEL<13.8D>	39-85001-01A	
20	SCREW	35-06130-6RA	
21	DISPLAY RUBBER PAD (BOTTOM)	47-85021-010	



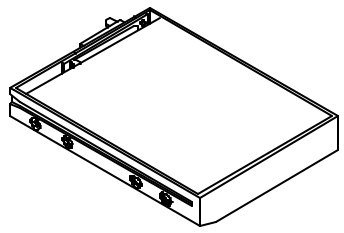
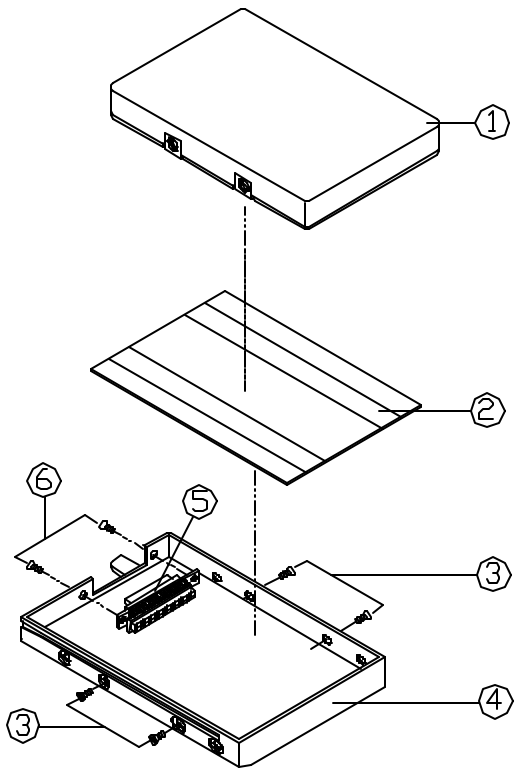
CD-ROM 組合圖

ITEM	PART NAME	PART NO	REMARK
1	SPONGE FOR CD-ROM	47-8509Z-010	
2	SCREW	35-46120-3RA	
3	FPC CABLE 20X	28-79R50-440	TEAC
4	SCREW	35-B4125-4RA	
5	CD-ROM CASE	42-8507Z-010	
6	CD-ROM BRACKET	33-8500Z-010	
7	CD-ROM 20X	87-62010-053	TEAC
8	SCREW	35-01120-2RE	
9	SPRING PLATE	38-62012-020	
10	CD-ROM EJECT BUTTON	42-6207Z-320	
11	CD-ROM LENS	42-52P7Z-110	
12	CD-ROM PANEL	42-6207Z-310	



FDD 組合圖

ITEM	PART NAME	PART NO	REMARK
1	FDD TOP CASE	42-8507J-010	
2	3.5' FDD	85-23211-567-C	TEAC
3	FDD MYLAR	40-8505J-010	
4	FPC CABLE	28-59R60-290	TEAC
5	FDD BOTTOM CASE	42-8507J-020	
6	SCREW	35-B4125-4RA	
7	SCREW	35-B4125-5RA	



2.5" HDD 組合圖

ITEM	PART NAME	PART NO	REMARK
1	2.5"HDD	85-12211-514	IBM
1	2.5"HDD	85-12211-542	SEAGATE
1	2.5"HDD	85-12211-59T	TOSHIBA
1	2.5"HDD	85-12211-5ET	TOSHIBA
2	HDD MYLAR	40-6205I-010	
3	SCREW	35-B6130-4R0	
4	HDD CASE	42-8507I-010	
5	FPC CABLE	28-79R50-260	
6	SCREW	35-B4125-5RA	