

CARD-486HB (SCE86436xx)**CARD-486HBL (SCE86406xx)**

■ DESCRIPTION

The EPSON CARD-486HB and CARD-486HBL are credit card size products that feature IBM PC/AT compatible functions, made possible by EPSON' computer know-how and micro-assembly technology. The EPSON CARD-486HB and CARD-486HBL consist of the Intel486SXSF™ (Ultra Low Power 486), RAM, ROM, SVGA controller (for CARD-486HB only), Bus controller and I/O controller, and can connect to various devices and external peripherals via a 236-pin card connector.

With the EPSON CARD Series, it is easy to build systems with specific needs for each customer's applications, such as a hand held equipment, factory automation, a set top box or etc.. The EPSON CARD Series can be easily used to upgrade a system with the EASI (Embedded All-in one System Interface). Maintenance is simplified, since only cards need to be replaced in the field.

The EPSON CARD-486HB or CARD-486HBL can be directly plugged into the existing products which has been designed for the EPSON CARD-386 or CARD-386L with some limitation. A Complete Hardware Manual, An Application Note and A Design Guide are also available.

■ SELECTION GUIDE

Model No	Clock	RAM	ROM	VGA	FDC	Dimensions (mm)
SCE8643600	16 MHz	1MB	256 KB	SPC8110	SPC2052	85.6 x 54.0 x 5.5
SCE8643603	16 MHz	4MB	256 KB	SPC8110	SPC2052	85.6 x 54.0 x 5.5
SCE8643605	33 MHz	4MB	256 KB	SPC8110	SPC2052	85.6 x 54.0 x 5.5
SCE8640600	16 MHz	1MB	256 KB	None	None	85.6 x 54.0 x 5.5
SCE8640603	16 MHz	4MB	256 KB	None	None	85.6 x 54.0 x 5.5

Tc (case surface temperature) = 0 ~ 70°C for operation

■ FEATURES

- CPU.....Intel 486SXSF
- CPU Clock.....16MHz, 33MHZ
- Chip Set.....SPC8210, SPC8221
(SEIKO EPSON)
- Memory
 - RAM.....1MB, 4MB
 - BIOS ROM...256KB
- SVGA.....SPC8110 (SEIKO EPSON)
 - Analog RGB
 - Mono-STN, color TFT or color STN
- Video Memory.....512KB
 - Resolution.....up to 800x600, 256 colors
- Power Supply.....3.3V±0.3V and 5.0V±5%
- EPSON BIOS.....IBM PC/AT compatible
SVGA BIOS
Power management
APM 1.1 compliant
- Other Features.....IrDA 1.0
IDE Large Drive (8.4GB)
Enhanced Parallel Port
Watchdog Timer
16C550 2 Channels

■ CURRENT CONSUMPTION

Normal Mode (no power management)

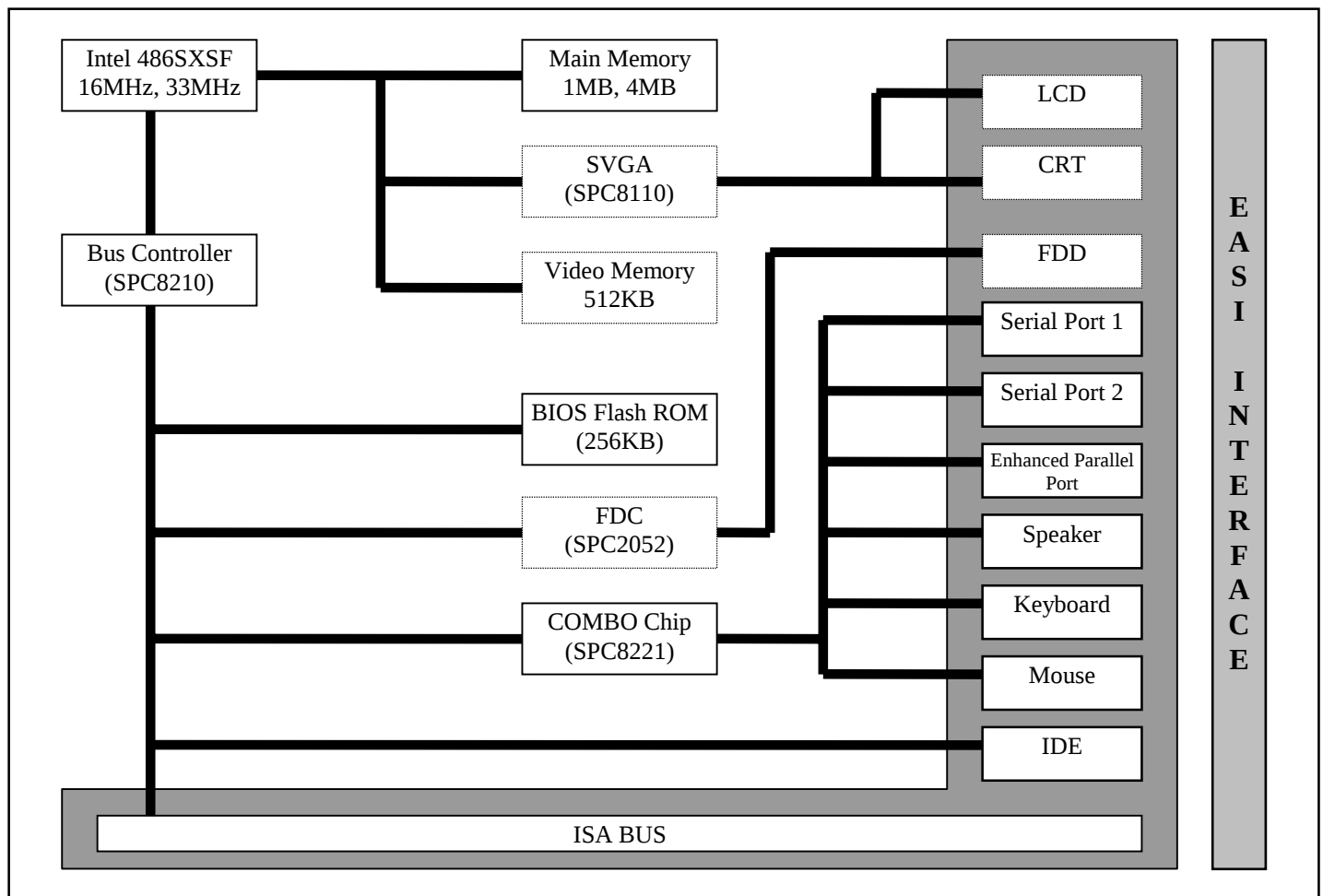
Model	Clock	RAM	3.3V Typ/Max	5.0V Typ/Max	Typical Total
SCE8643600	16MHz	1MB	320mA / 450mA	55mA / 85mA	1,331mW
SCE8643603	16MHz	4MB	320mA / 450mA	55mA / 85mA	1,331mW
SCE8643605	33MHz	4MB	450mA / 700mA	55mA / 85mA	1,760mW
SCE8640600	16MHz	1MB	145mA / 220mA	10mA / 16mA	528mW
SCE8640603	16MHz	4MB	145mA / 220mA	10mA / 16mA	528mW

Suspend Mode

Model	Clock	RAM	3.3V Typ/Max	5.0V Typ/Max	Typical Total
SCE8643600	16MHz	1MB	0.4mA / 1.2mA	0.3mA / 0.9mA	2.82mW
SCE8643603	16MHz	4MB	0.4mA / 1.2mA	0.3mA / 0.9mA	2.82mW
SCE8643605	33MHz	4MB	0.4mA / 1.2mA	0.3mA / 0.9mA	2.82mW
SCE8640600	16MHz	1MB	0.2mA / 0.6mA	0.2mA / 0.6mA	1.66mW
SCE8640603	16MHz	4MB	0.2mA / 0.6mA	0.2mA / 0.6mA	1.66mW

■ BLOCK DIAGRAM

Note : CARD486HBL-does not include video and floppy functions, which are indicated by dotted box.



PIN CONFIGURATION

1	GND	119	GND
2	GND	120	GND
LCD Interface			
3	EXDOTCLK	121	FPDOTCLK
4	LD6	122	LD7
5	LD4	123	LD5
6	LD2	124	LD3
7	LD0	125	LD1
8	FPVTIM	126	FPHTIM
9	FPAC	127	LD8
10	FPVCCON	128	FPVEEON
11	LD9	129	BLANK#
12	LD11	130	LD10
13	LD13	131	LD12
14	LD15	132	LD14
CRT Interface			
15	BLUE	133	BRTN
16	GREEN	134	GRTN
17	RED	135	RRTN
18	VSYNC	136	HSYNC
LCD Interface			
19	LD17	137	LD16
20	RESERVE	138	RESERVE
MOUSE Interface			
21	MSDATA	139	MSCLK
KEYBOARD Interface			
22	KBDATA	140	KBCLK
FDD Interface			
23	FDWP#	141	FDRD#
24	FDINDEX#	142	FDDCHG#
25	FDTRK0#	143	FDWE#
26	FDWD#	144	FDHIDEN
Power Supply			
27	VCC5	145	VCC5
28	VCC5	146	VCC5
29	VCC3	147	VCC3
30	VCC3	148	VCC3
FDD Interface			
31	FDDS2#	149	FDDS1#
32	FDMT2#	150	FDMT1#
33	FDSIDE	151	FDSTEP#
34	FDDIR	152	RESERVE
SERIAL Interface			
35	RESERVE	153	DARX
36	COMBDTR#	154	COMBRI#
37	COMBCTS#	155	COMBRXD
38	COMBRTS#	156	COMBTXD
39	COMBDSR#	157	COMBDSD#
40	COMADTR#	158	COMARI#

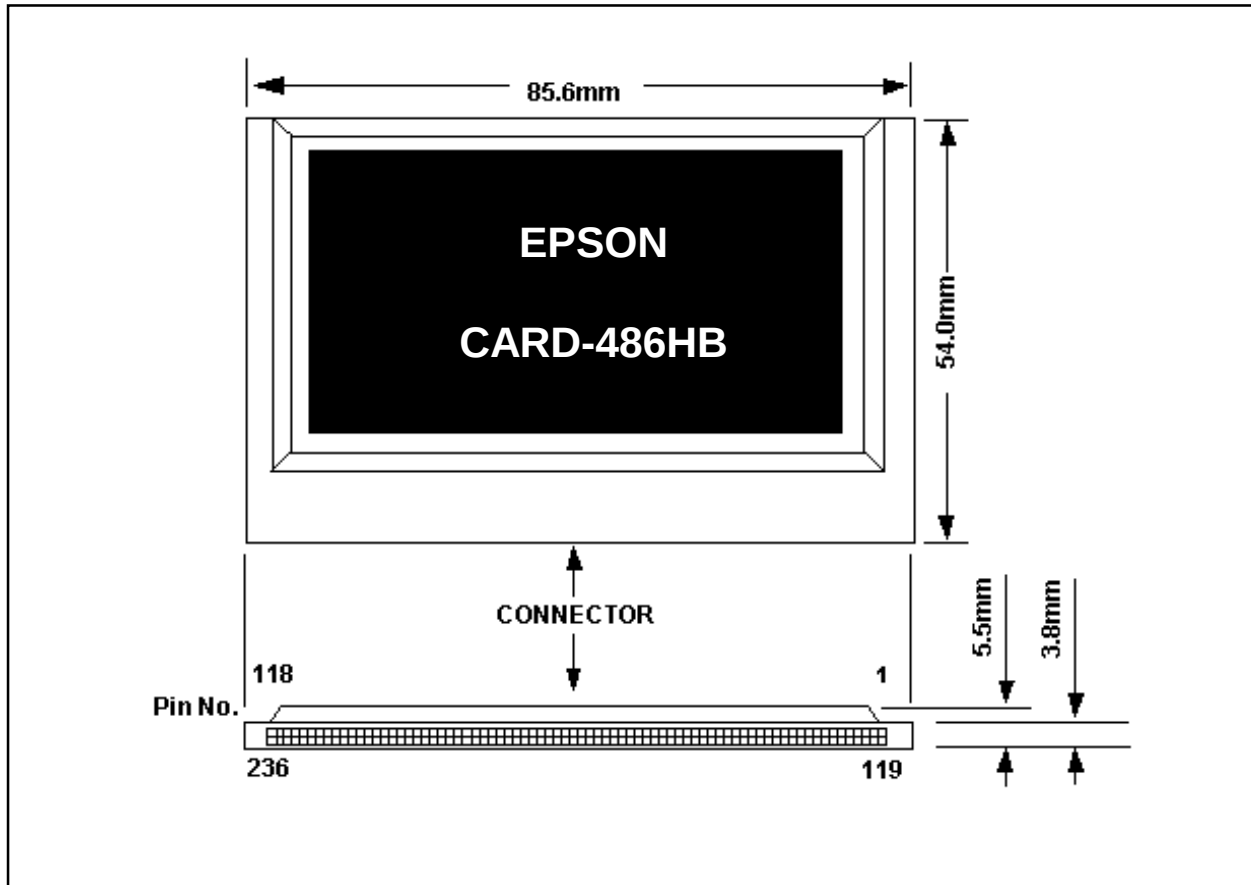
41	COMACTS#	159	COMARXD
42	COMARTS#	160	COMATXD
43	COMADSR#	161	COMADCD#
44	IRRX	162	IRTX
PARALLEL Interface			
45	LPTSTROBE#	163	LPTAFD#
46	LPTD0	164	LPTERROR#
47	LPTACK#	165	LPTBUSY
48	LPTPE	166	LPTSLCT
49	LPTD1	167	LPTINIT#
50	LPTD2	168	LPTSLTCIN#
51	LPTD3	169	LPTD4
52	LPTD5	170	LPTD6
53	LPTD7	171	LPTDIR
IDE Interface			
54	HDIR	172	HD7
55	HDENL#	173	HDENH#
56	HDCS0#	174	HDCS1#
Power Management			
57	SUSSTAT#	175	VBK
58	BATLOW#	176	EXTSMI#
Power Supply			
59	GND	177	GND
60	GND	178	GND
Power Management			
61	BATWRN#	179	RESERVE
62	POWERGOOD	180	SRBTN#
Speaker Interface			
63	SPKOUT	181	WDTIM#
ROM Update Interface			
64	FLOAT#	182	PGM
65	ROMCE0#	183	RESERVE
66	RESERVE	184	RESERVE
ISA Bus			
67	SD7	185	RESETDRV
68	SD6	186	IOCHCK#
69	SD5	187	IRQ9
70	SD4	188	DRQ2
71	SD3	189	WS0#
72	SD2	190	SMEMW#
73	SD1	191	SMEMR#
74	SD0	192	IOW#
75	IOCHRDY	193	IOR#
76	AEN	194	DACK3#
77	SA19	195	DRQ3
78	SA18	196	DACK1#
79	SA17	197	DRQ1
80	SA16	198	REF#
81	SA15	199	SCLK

Power Supply			
82	VCC3	200	VCC3
83	VCC3	201	VCC3
84	VCC5	202	VCC5
85	VCC5	203	VCC5
ISA Bus			
86	SA14	204	IRQ7
87	SA13	205	IRQ6
88	SA12	206	IRQ5
89	SA11	207	IRQ4
90	SA10	208	IRQ3
91	SA9	209	DACK2#
92	SA8	210	TC
93	SA7	211	BALE
94	SA6	212	OSC
95	SA5	213	MEMCS16#
96	SA4	214	IOCS16#
97	SA3	215	IRQ10
98	SA2	216	IRQ11
99	SA1	217	IRQ12
100	SA0	218	IRQ15
101	SBHE#	219	IRQ14
102	LA23	220	DACK0#
103	LA22	221	DRQ0
104	LA21	222	DACK5#
105	LA20	223	DRQ5
106	LA19	224	DACK6#
107	LA18	225	DRQ6
108	LA17	226	DACK7#
109	MEMR#	227	DRQ7
110	MEMW#	228	MASTER#
111	SD8	229	SD12
112	SD9	230	SD13
113	SD10	231	SD14
114	SD11	232	SD15
Power Management			
115	SMOUT3	233	SMOUT2
116	SMOUT1	234	SMOUT0
Power Supply			
117	GND	235	GND
118	GND	236	GND

Note : The following pins are not used and reserved by CARD-486HBL.

Pin # : 3~19, 23~26, 31~34, 121~137, 141~144, 149~151

■ CARD DIMENSIONS



■ MATING CONNECTORS AND STOPPERS

- ◇ Through-hole Type
 - SEK6669P01 CARD connector, no ejector
 - SEK6669P02 CARD connector, with ejector
 - SEK6675P01 CARD stopper (clip) for SEK6669P01
- ◇ Surface-mount Type
 - SEK6677P01 CARD connector, bottom part
 - SEK6678P01 CARD connector, main part

(1) All specifications of this device are subject to change without notice. The information in this brochure has been checked and is believed to be reliable. However, no responsibility can be assumed for the use of any circuits shown nor for infringements of patents which may result from their use, (2) This document contains technology relating to strategic products controlled under the Foreign Exchange and Foreign Trade Control Law of Japan. This document or a portion thereof should not be exported without obtaining an export license from the ministry of International Trade and Industry in accordance with the above law. (3) IBM PC, PC AT, CGA and IBM are registered trademarks of International Business Machines Corporation, U.S.A.

S-MOS assumes no responsibility of liability for (1) any errors or inaccuracies contained in the information herein and (2) the use of the information or a portion thereof in any application, including any claim for (a) copyright or patent infringement of (b) direct, indirect, special or consequential damages. There are no warranties extended or granted by this document. The information herein is subject to change without notice from S-MOS.