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### Specifications

### Main Board

CPU

PP7000D-15	Intel® Atom™ processor D525 (1M Cache, 1.80 GHz)
PP6000D-12	Intel® Atom™ processor D525 (1M Cache, 1.80 GHz)
Chipset	Intel® NM10 Express Chipset
System Memory	Socket-type RAM device, 204PIN SO-DIMM DDR3 RAM, up to 4GB
Graphic Memory	Shared system memory up to 256MB

### LCD Panel ------

#### PP7000D-15

Panel Size	15"
Maximum Resolution	1024 x 768
Brightness	250 cd/m1
Contrast Ratio	600:1
Response Time	8 ms
View Angles (H/V)	160 / 160
Touch Panel	Five Wires Resistive

### PP6000D-12

Panel Size	12.1"
Maximum Resolution	1024 x 768
Brightness	195 cd/m1
Contrast Ratio	400 : 1
Response Time	16 ms
View Angles (H/V)	90 / 65
Touch Panel	Five Wires Resistive

### Storage \_\_\_\_\_

HDD	2.5" SATA interface
Compact Flush	Type I&II

### Expansion —

Mini-PCIE Socket One

### Power —

Power Adaptor

Input AC 100-240V 2.5A 50/60Hz, Output DC 12V 6.66A

### I/O \_\_\_\_\_

USB	Six
Serial	Four COM ports with RJ-45 Connector
	Pin 9 with 5V / 12V power selectable
Parallel	One LPT with adaptor cable
LAN	One
2nd VGA Output	One with optional adaptor cable
PS/2	One
Audio	One Earphone & One Microphone
Control/Indicator -	
Power Button	One
LED Indicators	Power (Green), HDD (Red), LAN(Orange)
<b>Optional Periphera</b>	als —
Magnetic Card Reader	ISO Track 1/2/3, USB interface
VFD customer display	20 x 2 characters, RS-232 interface
Dimensions ——	
PP-7000D-15	358(W) X 300(L) X 52(H) mm
PP-6000D-12	294(W) X 235(L) X 45(H) mm
Environment —	
Operating Temperature	0°C ~ 40°C ( 32°F ~ 104°F )
Storage Temperature	- 20°C ~ 60°C ( - 4°F ~ 140°F )
Operating Humidity	10% - 80% RH non condensing
Storage Humidity	10% - 80% RH non condensing
Model Number —	
PPS000DX - SS	Intel® Atom™ processor D525 (1M Cache, 1.80 GHz)
X : M Shinny Black I	nousing
Q Dull Black hou	sing

W – Shinny White housing

S000DX-SS: 7000DX-15 --- 15" TFT LCD

6000DX-12 --- 12" TFT LCD

### Items Checklist

### If any item is missing, please contact your sale agent immediately.

Take the system unit out from the carton. Remove the unit by carefully holding the foam inserts and remove slowly to protect the system. The following items should be found in the carton:





7. Second Display cable (Optional)

### About Your System

Please unplug the AC power of the adapter before opening any part of the system. Since the standby power is always on after the adapter is plugged in. It may cause permanent damage to your system when you open any part of it.



### The connector panel

Please notice that all Four COM ports using RJ-45 connector and two RJ-45 to DB-9 conversion cables are provided in the package.



Please notice that the Printer and VGA connectors in the second level, using JST PHD pitch 1.25 type connectors. The package includes a Printer Port adapter cable to connect to this connector and a centronic connector. The VGA, Audio adapter is optional accessory.

### **BIOS Setting**

### **A** Important Notice

If you find the screen is completely dark when power on. Please Reset BIOS setting as described in the former chapter. After clean CMOS operation, press <DEL> key many times after power on beep sound to enter BIOS setup mode then press <F10> and <Enter>. It will set BIOS to default value. Or connect a monitor to the second VGA port and enter BIOS setup mode then Load Optimized Defaults and Save &Exit Setup.

Phoenix - AwardB10S	CMOS Setup Utility
<ul> <li>Standard CMOS Features</li> <li>Advanced BIOS Features</li> <li>Advanced Chipset Features</li> <li>Integrated Peripherals</li> <li>Power Management Setup</li> <li>PnP/PCI Configurations</li> <li>PC Health Status</li> </ul>	<ul> <li>Frequency-Voltage Control Load Fail-Safe Defaults</li> <li>Load Optimized Defaults</li> <li>Set Supervisor Password</li> <li>Set User Password</li> <li>Save &amp; Exit Setup</li> <li>Exit Without Saving</li> </ul>
Esc : Quit F10 : Save & Exit Setup Time, Date, Hard	↑↓→← : Select Item I Disk Type

#### **Standard CMOS Features**

Use this menu for basic system configuration.

#### **Advanced BIOS Features**

Use this menu to set the Advanced Features available on the system.

#### **Advanced Chipset Features**

Use this menu to change the values in the chipset registers and optimize the system's performance.

#### **Integrated Peripherals**

Use this menu to specify your settings for integrated peripherals.

#### Power Management setup

Use this menu to specify your settings for power management.

#### **PnP/PCI** Configurations

This entry appears if your system supports Plug and Play and PCI Configuration.

#### PC Health Status

Displays CPU, System Temperature, Fan Speed, and System Voltages Value.

#### Frequency / Voltage Control

Control DIMM & PCI Clock

#### Load Fail-Safe Defaults

Use this menu to load the BIOS default values, i.e., factory settings for fail-safe system operations

#### Load Optimized Defaults

Use this menu to load the BIOS default values, i.e., factory settings for optimal performance system operations. While Award has designed the custom BIOS to maximize performance, the factory has the option to change these defaults to meet their needs.

#### Set Supervisor Password

Enables you to change, set, or disable the supervisor or user password.

#### Set User Password

Change, set, or disable the password.

It allows you to limit access to the system and to the setup, or just to the setup.

#### Save & exit setup

Save CMOS value changes to CMOS and exits setup.

#### Exit without saving

Ignores all CMOS value changes and exits setup.

For the PP7000D-15 (15" TFT), Panel Type (LVDS) should set to 1024 x 768 24 bits while the PP7000D-12 (12.1" TFT) is 1024x768 18 bits.

### Installing the Windows Driver

#### **Driver List**

- a. Intel Chipset driver
  - b. Intel Extreme Graphics driver
  - c. Intel 82562ET LAN driver
  - d. Realtek AC97 codec driver
  - e. TouchKit Touch Screen driver

### Please always install the Intel Chipset driver first and restart the Windows system before processing other driver's installation.

#### **Chipset Driver Installation**

Insert the CD comes with the system into any USB external CD-ROM, select the CD driver and change directory to "Chipset".





A. Click the "Next" button on the Welcome window

B. Click the "Yes" button on the License Agreement window

Intel® Chipset Device Software	Intel© Chipset Device Software
Intel® Chipset Device Software Readme File Information	Intel® Chipset Device Software Setup Is Complete
Refer to the Readme file below to view the system requirements and installation information. Press the Page Down key to view the rest of the file. * Product: Intel(R) Chipset Device Software * Release: Production Version * Version: 9.0.0.1008 * Target Chipset#: Intel(R) 4 Series Chipset * Date: May 01 2008	The setup program successfully installed the Intel® Chipset Device Software onto this computer. Click Finish to complete the setup process.
< <u> </u>	
< Back Next > Cancel	Finish
Intel® Installation Framework	Intel® Installation Framework

C. Click the "Next" button to continue

D. Click the "Finish" button

### **VGA Driver Installation**

Select the CD directory to "VGA"



Intel(R) Chipset Graphics Driver Software - InstallShield Wizard	🛛 📓 Intel(R) Chipset Graphics Driver Software - InstallShield Wizard
***************************************	Extracting Files The contents of this package are being extracted.
* Production Version Releases	Please wait while the InstallShield Wizard extracts the files needed to install Intel(R) Chipset Graphics Driver Software on your computer. This may take a few moments.
<ul> <li>Microsoft Windows* XP</li> <li>Driver Revision:</li> <li>Production Version 14.37.4.5218</li> <li>Package: 87581</li> <li>Graphics: 6.14.10.5218</li> <li>HDMI Audio: 5.10.0.1049</li> <li>*</li> <li>January 21, 2010</li> <li>* NOTE: This document refers to systems</li> <li>* containing the following Intel(R) chipsets:</li> </ul>	Extracting igfxrslv.lrc
< Back Next > Canc	Back Next > Cancel



A. Click the "Next" button on the Welcome window

### B. Click the "Yes" button on the License Agreement window



C. Click the "Next" button to continue



D. Click the "Finish" button

### LAN Driver Installation

Select the CD directory to "LAN"



🙀 Intel(R) Network Connections - InstallShield Wizard	$\mathbf{\overline{X}}$	🚏 Intel(R) Network Connections - InstallShield Wizard	
Welcome to the InstallShield Wizard for Intel(R) Network Connections	(intel)	License Agreement Please read the following license agreement carefully.	(intel)
Installs drivers, Intel(R) PROSet for Windows* Device Manager, and Advanced Networking Services. WARNING: This program is protected by copyright law and		INTEL SOFTWARE LICENSE AGREEMENT (Final, License) IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING. Do not use or load this software and any associated materials (collective) "Software") until you have carefully read the following terms and condified loading or using the Software, you agree to the terms of this Agreement do not wish to so agree, do not install or use the Software.	rely, the ions. By t. If you
InstallShield	Cancel	LICENSES: Please Note: I accept the terms in the license agreement I do not accept the terms in the license agreement InstallShield <back next=""></back>	Print Cancel

A. Click the "Next" button on the Welcome window

Intel(R) Network Connections	🐺 Intel(R) Network Connections - InstallShield Wizard
Setup Options Select the program features you want installed.	Ready to Install the Program The wizard is ready to begin installation.
Install:	Click Install to begin the installation. If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
Feature Description <back< td="">         Next &gt;         Cancel</back<>	InstallShield



B. Click the "Finish" button

### **Audio Driver Installation**

Select the CD directory to "Step 4 - Install Realtek AC97 codec Driver"





A. Click "NEXT"





B. Click the "Finish" button

### **Touch Kit Touch Driver Installation**

Select the CD directory to "TouchKit Driver"





A. Double click "SETUP" on the My computer window





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 Total Carlow

 Control Type Trade to the table part and the sector part and

- C. Click "Next "button on the "Select Type" window
- D. Select "None" and Click "Next"



child

Edit View Pavorites Too	e Help		
Bask • 🔘 • 🧊 🔎	Search 😥 Folders 🛄 •		
Cipocuments and Setting	arither thild exists of (11x000), All In , One , 24,	99,9685,5.0.1.5310 Release	× 🔁
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	Setup Kn	setup He	Size: 449 KB

A. Double click "SETUP" on the my computer window

Council	ion	Hardware	About
General	Setting	fools	Display
Installed Touchsc	reen Controllers		
USB Controller			
COD CONTROLO			
		Add	Remove
		and the second se	

G. Install successful and restart your system

TauchAit Select Program Folder	
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	Seria: of all program Group & the Phagean Fisher, knowl before a new Adder took. Program Fisher Investal Program Fisher Investal Fisher Reference State State State
Interina .	1 Bak Bort

B. Click the "Next" button on the Welcome window

### Four Points Calibration of the touch screen

Always perform the Four Points Calibration of the TouchKit program after your first installation of the touch screen driver.

Edge Compensation General	Hardware   Setting Tools	About Display
rearization Curve		
4 Points Calibration	Do 4 points alignment to match dis	pley.
Clear and Calibrate	Gear Ineertration parameter and di alignment.	o 4 pointa
Linearization	Do 9 points lineartation for better to linearity.	ouchscree
Draw Test	Do draw test to verify the touch ac	curecy.

A. Select Tools then 4 Points Calibration.



C. Press OK to continue.



B. Press the Green Blink Cross mark.

### **DirectX 9 Installation**





### Main Board Setting

Please unplug the AC power of the adapter before opening any part of the system. Since the standby power is always on after the adapter is plugged in. It may cause permanent damage to your system when you open any part of the system.

### **Installing Peripherals Connectors & Jumpers settings**

### Motherboard Layout Component Side



### Solder side



VGA LPT

Audio MIC



### Connector: CN\_USB3/4

Type: DF13 10-pin pitch=1.25mm

Pin	Description	Pin	Description
1	5VSB	2	5VSB
3	USB4N/6N	4	USB5N/7N
5	USB4P/6P	6	USB5P/7P
7	GND	8	GND
9	GND	10	N/C



### Connector: CN\_COM1

Type: DF13 10-pin pitch=1.25mm

Pin	Description	Pin	Description
1	MDCD1	2	MSIN1
3	MS01	4	MDTR1
5	GND	6	MDSR1
7	MRTS1	8	MCTS1
9	+12V	10	N/C



### Connector: CN\_COM2

Type: DF13 10-pin pitch=1.25mm

Pin	Description	Pin	Description
1	MDCD1/2	2	MSIN1/2
3	MS01/2	4	MDTR1/2
5	GND	6	MDSR1/2
7	MRTS1/2	8	MCTS1/2
9	+5V	10	N/C



Type: 5-pin LVDS Power Header

Pin	Description
1	+12V
2	CTLBKL
3	GND
4	GND
5	ENABKL



### Connector: JVLCD

Type: 6-pin Power select Header

Pin	Description
1-2	LCDVCC (3.3V)
3-4	LCDVCC (5V)
5-6	LCDVCC (12V)



### Connector: CN\_LVDS

Type: onboard 40-pin connector for LVDS connector Connector model: HIROSE DF13-40DP-1.25V

Pin	Description	Pin	Description
2	LCDVCC	1	LCDVCC
4	GND	3	GND
6	ATX0-	5	BTX0-
8	ATX0+	7	BTX0+
10	GND	9	GND
12	ATX1-	11	BTX1-
14	ATX1+	13	BTX1+
16	GND	15	GND
18	ATX2-	17	BTX2-
20	ATX2+	19	BTX2+
22	GND	21	GND
24	ACLK-	23	BTX3-
26	ACLK+	25	BTX3+
28	GND	27	GND
30	ATX3-	29	BCLK-
32	ATX3+	31	BCLK+
34	GND	33	GND
36	DDCPCLK	35	N/C
38	DDCPDATA	37	N/C
40	N/C	39	N/C

### Connector: CN\_JFRNT



### Type: DF13 10-pin pitch=1.25mm

Pin	Description	Pin	Description
1	PWRBT-	2	PWRBT-
3	LANLED-	4	LANLED+
5	HDLED	6	HDLED+
7	PWRLED	8	PWRLED+
9	Reset+	10	Reset-



# Connector: DC\_OUT

Type: 4-pin connector for +5V/+12V output

Pin	Description	Pin	Description
1	+12V	2	Ground
3	Ground	4	+5V



### Connector: CN\_LPT

Type: DF14 25-pin pitch=1.25mm

Pin	Description	Pin	Description
1	-PSTB	2	AFD
3	PRD0	4	ERR
5	PRD1	6	INIT
7	PRD2	8	SLIN
9	PRD3	10	GND
11	PRD4	12	GND
13	PRD5	14	GND
15	PRD6	16	GND
17	PRD7	18	GND
19	ACK	20	GND
21	BUSY	22	GND
23	PE	24	GND
25	SLCT		



### Connector: CN\_CRT

Type: DF14 25-pin pitch=1.25mm

Pin	Description	Pin	Description
1	BR	2	5VSB
3	BG	4	GND
5	BB	6	N/C
7	N/C	8	CDA
9	GND	10	HSYNC
11	GND	12	VSYNC
13	GND	14	CLK
15	GND		

## Customer Display Setting

### **Character Font Table**

### A. Control code set

HEX	CODE	HEX	CODE
00H	NULL	10H	DLE
01H	MD1	11H	DC1
02H	MD2	12H	DC2
03H	MD3	13H	DC3
04H	MD4	14H	DC4
05H	MD5	15H	-
06H	MD6	16H	
07H	MD7	17H	-
08H	BS, Md8	18H	CAN
09H	HT	19H	2.
0AH	LF	1AH	
0BH	HOM	1BH	ESC
0CH	CLR	1CH	
0DH	CR	1DH	
0EH	SLE1	1EH	SF1
0FH	RS,SLE2	1FH	US, SF2

### B. U.S.A. font set

2	0	1	2	3	4	5	6	7	8	9	Α	В	С	D	Ε	F
20h			8.8				****					•••				<sup>*</sup>
30h						00000 0000 0000			8		88	.00 .00		65066 55066		
40h			0000				00000 0000									
50h	5000. 5000. 5000.		0000. 0000										•••		;***;	
60h								. 4000	0000,							
70h	0000 0000		0.00 0.00 0.00	0000 0000	40000		I., I		••••		60000	8			<b>6.26</b>	

#### C. International character selection ASCII CODE

Hex. Value	International	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
30H	USA					•••		•	•				•**•*
31H	FRANCE				808			•	•				•.•
32H	GERMANY			.000.				•**•	•••				00
33H	U.K.					••••		•	•				*****
34H	DENMARK I							••••	•				•
35H	SWEDEN												
36H	ITALY				:::	•••		•					•
37H	SPAIN							•		•••			4°84°
38H	JAPAN	****				*****					:		<b>1°21</b> *
39H	NORWAY												
ЗАН	DENMARK II	00000								10.0. .0000			
3BH	SLAVONIC					••••		••••		, ***.			•**•
зсн	RUSSIA	00000				•		•	•				4°\$4*

3DH: Standard Europe international font set

	D	Ľ	2	3	4	5	6	7	8	9	A	в	С	D	E	F
80h	1			.0000 .0000 .0000	.0.0 .000 .000			ç		.e.e.	355. 1999	-	1	1	111	
90h	10000			1000 1000	6446 444							aut.	Į.			000
A0h		*	***		e.ce.	.00.5 0.03 0.03 0.03			, t , t , t	e	*****		Ľ,	Ì		
DOP						1		1				1	11	Ц		"
COh		l	ľ		*****			l		11	11,	65656 65:56		ddddi ddddi	11	15556 15555
D0h				11		158 000	II			1						22022
EOh				000000				44444 8 8 8 8		890. 9908 9908			-			Ű
F0h	*****	1.			0.0				11	80 98	•	-	r i			

3EH: Multingual international font set

	0	1	2	3	4	5	6	7	8	9	А	в	С	D	E	P
80h	100000 100000 100000	i,		1.1		***		1.144 1.144	ĥ	: <u>* </u> * *	4		***	-		
90h	5.44 5.44 8.644			.000 .000	.e.e.	2				404 600	Ü	1.1.1	-	1	X	f
A.0h	.000 .000				6.00. 8.66. 8.66. 90	4 <sup>2</sup> 2.4				000						
BOh		33													4 4 12244 12244	•
COh				ŀ	****				1.			*****		6656-6 6656-6		
DOh		8355. 8555. 8555.			-				16-16- 16-16-					1	1	
E.Oh		ß		1.00	**** ****	4-84 4440 4440	H	***			ģ			÷	****	
Füh		****	*****		**************************************	.009. 009. 009.		-				50.	***	****		

3FH: Portuguese international font set

	-														- 1	-
	0	1	2	3	4	5	6	7	8	9	A	в	С	D	E	F
80h	1960 1955				 	000 000 0000	ĥ	1		Ê	800 0 800 0 850		e 1 cer 6ce	1	444 144	6 6 335 555
9015					.e.e.		100			. dee	Ľ,	50-58	5.00 5990.	1	664	
A0h	1				0.00	,"Ie"   		20000 1440 00000	8.000	355	****	1.5	1		0,0 0,0 0,0	
B0h				1		49 99		1100	055. 055		0.0000			.11		***
C0h	1.,		T		66000		4000 000			3.99 5.5		110-00 11 - 00 11 - 1		*****	11	
D0h	5.0. 5.0. 55000	****	11			ŀ	00000		00000	a35.	ľ					
E0h		100 00 00 00 00 00 00 00 00 00 00 00 00					404666	1					0.0. 0.c.0			
FOh		*****	0.0000		ľ	0.000		1. 10. 1	11	.11			ľ	de		

40H: Canadian French international font set



41H: NORDIC internatinal font set





43H: SLAVONIC Font set

	0	1	2	3	4	5	6	7	8	9	٨	в	¢	D	E	F
80h	000. 000 000 000		035. 035.					200			148	Ċ	ŝ	i li	455 455 4555	4444
90h			1	1.0 1.0 1.0	.0.8.		1			66-4 66-6			ł,	1		0.0. 0.000
A0h				0		46 00 46 00 46 00	.0.0. 000000	-	100 1000 1000	.0000 .0200			4444	.64-6 .64-6		2
B0h	*.e.e *.e.e *.e.e		0.00.00	000000			0000 0000		. 2000 . 200 . 200 . 200					:434: 69346 69346 69346		
C0h					••••	10000								000-c0		
D0h	1						1	40. 40. 40.	4555 - 4555 - 4555 -				2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2			
E0h	tte.	ee	.000. .000.	0.22				.0000 .0000	0.0°.0	Û	ŀ.				4	
F0h	669	e.e.		*	e	. 5005. 5545 5545			: <b>6 1 6</b>					Ê	890 884 890	

44H: Katakana font set



### System Commands

### **Command Format**



### Command List

#### A. Set Baud Rate

COMMAND: B COMPUTER:EOT SOH 'B' 'BAUD RATE' 'N' ETB ASCII (04H) (01H)(42H) (31H~37H)(4EH)(17H) Byte 1 1 1 1 1 1 DISPLAY: ACK (or NACK if failed) ASCII (06H) (15H) Byte 1 1 1 Note: Baud rates 31H: 9600 32H: 4800 33H: 2400 34H: 1200 35H: 600 36H: 300 37H:19200

#### **B.** Select international code table

COMMAND: I COMPUTER:EOT SOH 'I' 'CHAR' ETB ASCII(04H)(01H)(49H)(30H~44H)(17H) Byte 1 1 1 1 1 (or NACK if failed) DISPLAY: ACK ASCII (06H) (15H) Byte 1 1

Note : International Character Code

30H : U.S.A.	3BH: Slavonic
31H : France	3CH: Russia
32H : Germany	3DH: Standard Europe International font set
33H : U.K.	3EH: Multingual International font set
34H : Denmark I	3FH : Portuguese International font set
35H : Sweden	40H : Canadian French International font set
36H : Italian	41H : Nordic International font set
37H : Spain	42H : Russia font set
38H : Japan	43H : Slavonic font set
39H : Norway	44H : Katakana font set
3AH: Denmark II	

#### C. Save the current view message

(Save Demo view data) COMMAND: S COMPUTER:EOT SOH 'S' 'Layer' ETB ASCII(04H)(01H)(53H)(31H~33H)(17H) Byte 1 1 1 1 1 DISPLAY: ACK (or NACK if failed) ASCII (06H) (15H) Byte 1 1 1 Note : 31H: Layer 1 / 32H: Layer 2 / 33H: Layer 3

#### **D.** Set cursor position

COMMAND: P					
COMPUTER: EOT SO	)H 'P'	'Positio	on' ETB		
ASCII (04H) (0	)1H) (	(50H) (3	31H~58H	H) (17H)	)
Byte 1	1	1	1	1	
DISPLAY: ACK		(	or NAC	K if faile	ed)
ASCII (06H)			(15)	H)	
Byte 1				l	

Note: The cursor can be set to the position from 1 to 40Position 1 means the upper left corner position.Position 20 means the upper right corner position.Position 21 means the lower left corner position.Position 40 means the lower right corner position.

#### E. Clear display range

COMMAND: C

COMPUTER: EOT SOH 'C' 'START' 'END' ETB ASCII (04H)(01H)(43H)(31H~58H)(31H~58H)(17H) Byte 1 1 1 1 1 DISPLAY: ACK (or NACK if failed) ASCII (06H) (15H) Byte 1 1

**Note:** Some part of the current view messages can be cleared by this COMMAND. It can start clearing between position 1 and position 40.

#### F. Display the saved DEMO message

COMMAND: D COMPUTER: EOT SOH 'D' 'Layer' 'Mode' ETB ASCII (04H)(01H)(44H)(31H~37H)(31H~33H)(17H) Byte 1 1 1 1 1 DISPLAY: ACK (or NACK if failed) ASCII (06H) (15H) Byte 1 1 1

#### Note:

a) There are three layers of saved view messages as described on COMMAND "S"

b) There are two modes of display:

Mode 1 is running the saved messages from right to left, which is a horizontal scroll mode.

Mode 2 is running the saved messages from the lower line to the upper line, which is a vertical scroll mode.

c) For display layers:

select 31H means display the message saved on layer 1.

select 32H means display the message saved on layer 2.

select 33H means display the message saved on layer 1+ layer2.

select 34H means display the message saved on layer 3.

select 35H means display the two messages saved on layer 1 + layer 3.

select 36H means display the two messages saved on layer 2 +layer 3.

select 37H means display all the messages saved on layer 1 +layer 2 + layer 3.

#### d) For display modes,

select 31H means display the message with Mode 1.

select 32H means display the message with Mode 2.

select 33H means display the message with Mode 1+Mode 2.

For this Demo display function, you must have saved the message by COMMAND "S" previously, For example, select

37H for displaying layers and select 33H for displaying modes, DSP would display all the three messages saved on

layer 1 + layer 2 + layer 3 with both Mode 1 + Mode 2 displaying modes.

e) Any new message from the computer would stop this Demo

display function and DSP would display that new message from the computer.

#### G. Select the Command Mode

COMMAND: M

COMPUTER: EOT SOH 'M' 'Mode' ETB

ASCII (04H) (01H) (4DH)(30H~38H) (17H)

Byte 1	1	1	1	1
DISPLAY: ACK			(or NACK	if failed)
ASCII (06H)			(15H	)
Byte 1			1	

Note: Command Modes Selection

30H : VFD-450	35H : ICD 2002
31H : EPSON ESC/POS	36H : CD 5220
32H : UTC/S	37H : DSP-800
33H : UTC/E	38H : ADM 787/788
34H : AEDEX	

#### H. Set all default

COMMAND: X COMPUTER: EOT SOH 'X' ETB ASCII (04H) (01H) (58H) (17H) Byte 1 1 1 1

#### Transmission method

Each ASCII character is transmitted with

1 start bit 8 data bits

1 stop bit

No parity

**Note:** You may generate your own application software to run the display according to the standard RS-232C communication protocols and the SOFTWARE CONTROL information listed on this chapter.

### **Command Modes**

The command modes can be selected with the Demo Software.

Mode 0: Default Mode 1: EPSON Esc/POS Mode 2: UTC Standard Mode 3: UTC Enhanced Mode 4: AEDEX Mode 5: ICD 2002 Mode 5: CD 5220 Mode 7: DSP-800 Mode 8: ADM 787/788

#### Mode 0: Default

Command	Hexadecimal Codes	Function					
В	42H	Set baud rate and parity					
Ι	49H	Select international character set					
S	53H	Save the current view message					
Р	50H	Set cursor position					
С	43H	Clear display message					
D	44H	Display the saved DEMO message					
ESC G	IBH 47H	Print ON command					
ESC S	IBH 53H	Print OFF command					
M	4DH	Select command mode					
X	58H	Set all default					

### Mode 1: EPSON Esc/POS mode

Command	Code Description (hex)	Function
HT	09	Move cursor right
BS	08	Move cursor left
US LF	1F 0A	Move cursor up
LF	0A	Move cursor down
LIS CP	15.00	Move cursor to right-most
USCR	IF UD	position
CR	0D	Move cursor to left-most position
HOM	0B	Move cursor to home position
US B	1F 42	Move cursor to bottom position
US \$ x y	1F 24 x y X=1-20 y=01,02	Move cursor to specified position
CLR	0C	Clear display screen
CAN	18	Clear cursor line
USEn	1F 45 n n=00-ff	Blink display screen
ESC @	1B 40	Initialize display
ESC R n	1B 52 n n=0~15	Select international character set
US MD1	1F 01	Specify overwrite mode
US MD2	1F 02	Specify vertical scroll mode
US MD3	1F 03	Specify horizontal scroll mode
ESC W	1B 57 n s x1	Specify/cancel the window range
nsx1	y1 x2 y2	1<=x1<=x2<=20
y1 x2 y2	n=1,2,3,4 s=0, 1	1<=y1<=y2<=2
US:	1F 3A	Set starting/ending position of macro definition
US ^ n m	1F 5E n m 00<=(n,m)<=ff	Execute and quit macro
US @	1F 40	Execute self-test
US Thm	1F 54 h m	Display time
05 1 1 11	0<=h<=17,	0<=m<=3b
USU	1F 55	Display time continuously
USn	1E 2E n	n= a displayable character code
0.3.11	IF 2E II	Display the code with a dot
US,n	1F 2C n	n= a displayable character code Display the code with a comma
US;n	1F 3B n	n= a displayable character code Display the code with a semicolon
US#nm	1F 23 n m n = 0 ro 1 0 <=m<=20	Turn the anuciator ( $\mathbf{\nabla}$ ) ON/OFF

Command	Code Description (hex)	Function
BS	08	Back space
HT	09	Horizontal tab
LF	0A	Line feed
CR	0D	Carriage return
DLE	OF	Display position
DC1	11	Over write display mode
DC2	12	Vertical scroll mode
DC3	13	Cursor on
DC4	14	Cursor off
ESC d	1B 64	Change to UTC enhanced mode
US	1F	Clear display

### Mode 2: UTC Standard mode

### Mode 3: UTC enhanced mode

Command	Code Description (hex)	Function
ESC u ACR	1B 75 41 [ data x 20] 0D	Upper line display
ESC u BCR	1B 75 42 [ data x 20] 0D	Bottom line display
ESC u DCR	1B 75 44 [ data x 20] 0D	Upper line message scroll continuously
ESC u ECR	1B 75 45 hh ':' mm 0D H,m='0'-'9'	Display time
ESC u FCR	1B 75 46 [ data x 20] 0D	Upper line message scroll once pass
ESC u HCR	1B 75 48 n m 0D 20h<=n,m	Change attention code
ESC u ICR	1B 75 49 [ data x 40] 0D	Two line display
ESC RS CR	1B 0F 0D	Change to UTC standard mode

#### Mode 4: AEDEX mode

Command	Code Description (hex)	Function
! # 1CR	21 23 31 [ data x 20] 0D	Upper line display
! # 2CR	21 23 32 [ data x 20] 0D	Bottom line display
! # 4CR	21 23 34 [ data x 20] 0D	Upper line message scroll continuously
! # 5CR	21 23 35 hh ':' mm 0D H,m='0'-'9'	Display time
! # 6CR	21 23 36 [ data x 20] 0D	Upper line message scroll once pass
! # 8CR	21 23 38 n m 0D 20h<=n,m	Change attention code
! # 9CR	21 23 39 [ data x 40] 0D	Two line display
! # ACR	21 23 41 [ data x 20] 0D	Upper line scroll message
! # BCR	21 23 42 [ data x 20] 0D	Bottom line display message

Command	nmand Code Description Function (hex)		
HT	09	Move cursor right (only valid in overwrite mode)	
BS	08 Move cursor left (only valid in overwrite mo		
CR	0D	Move cursor to left-most position (only valid in overwrite mode)	
ESC @	1B 40	Initialize customer display to initial state, clears display buffer, set display mode to shift and sets current display row to upper row	
ESC U	1B 55	Select upper row as current row (initial default)	
ESC D	1B 44	Select lower row as current row	
ESC A $\phi$	$1B 41 \phi$ Sets customer display disal enable $\phi$ 'D'=disable, 'E'=enable		
ESCCrc	1B 43 r c	Move cursor to specified position (only valid in overwrite mode) -r Row ('U'=upper,'D'=lower) -c Column number (range from 1~20)	
ESC E r φ	1B 45 r <b>φ</b>	Set special effect or display mode of specified row	
ESC R n	1B 52 n n=30~44	Set international font sets -n international fonts code	

#### Mode 5: ICD 2002 mode

**REMARK**)\* Using command "ESC E r  $\Phi$ ", the value of parameter:

r 58= all rows
55= upper row
44= lower row
Φ special function, the value is one of
30= shift mode (default)
31= rotation mode
32= blink mode
33= clear this row and switch to shift mode
34= overwrite mode

35= vertical mode

Command	Code Description (hex)	Function
ESC DC1	1B 11	Overwrite mode
ESC DC2	1B 12	Vertical scroll mode
ESC DC3	1B 13	Horizontal scroll mode
ESC Q	1B 51 41	Set the string display mode,
ACR	[n]x20 0D	write string to upper line
ESC Q	1B 51 42	Set the string display mode,
BCR	[n]x20 0D	write string to lower line
ESC Q	1B 51 44	Upper line message scroll
DCR	[n]x20 0D	continuously
ESC [ D	1B 5B 44	Move cursor left
BS	08	Move cursor left
ESC [ C	1B 5B 43	Move cursor right
HT	09	Move cursor right
ESC A	1B 5B 41	Move cursor up
ESC [ B	1B 5B 42	Move cursor down
LF	0A	Move cursor down
ESD [ H	1B 5B 48	Move cursor to home position
HOM	0B	Move cursor to home position
ESC [L	1B 5B 4C	Move cursor to left-most position
CR	0D	Move cursor to left-most position
ESC [ R	1B 5B 52	Move cursor to right-most position
ESC [K	1B 5B 4B	Move cursor to bottom position
ESC 1 v v	1B 6C x y	Move cursor to specified
ESCIXY	1<=x<=20, y=1,2	position
ESC @	1B 40	Initialize display
ESCIW	1B 57 1 x1 x2 y	Set or cancel the
s x1 x2 y	1<=x1<=x2<=20	window range at horizontal
	Y=1,2	scroll mode
CLR	0C	Clear display screen, and
Electropy (Str.	5758/85 5	Clear string mode
CAN	18	Clear cursor line, and clear
		string mode
ESC_n	1B 5F n n=0,1	Set cursor ON/OFF
ESC fn	1B 66 n n=30~44	Select international fonts set

Mode 6	: CD	5220	standard	mode

30H : U.S.A.	3BH : Slavonic
31H : France	3CH : Russia
32H : Germany	3DH: Standard Europe International font set
33H : U.K.	3EH : Multingual International font set
34H : Denmark I	3FH : Portuguese International font set
35H : Sweden	40H : Canadian French International font set
36H : Italian	41H : Nordic International font set
37H : Spain	42H : Russia font set
38H : Japan	43H : Slavonic font set
	44H : Katakana font set

Mode 7: DSP-800 mode

Command	Code Description (hex)	Function
EOT SOH InETB	04 01 49 n 17	Select international fonts set
EOT SOH P n ETB	04 01 50 n 17 n=31H-58H	Move cursor to specified position
EOT SOH CnmETB	04 01 43 n m 17 31H≤n≤m≤58H	Clear display range from n position to m position and move cursor to n position
EOT SOH S n ETB	04 01 53 n 17 n=31H-35H	Save the current displaying data to n layer for demo display
EOT SOH D n m ETB	04 01 44 n m 17 n=31H-4FH m=31H-33H	Display the saved data
EOT SOH T ETB	04 01 54 17	Transmit the current view message to computer
EOT SOH B n N ETB	04 01 42 n 4E 17 n=31H: 9600 n=32H: 4800 n=33H: 2400 n=34H: 1200 n=35H: 600 n=36H: 300	Set baud rate

Mode 8: ADM 787/788 mode

Command	Code Description (hex)	Function
CLR	0C	Clear display
CR	0D	Carriage return
SLE1	0E	Clear upper line and move cursor to upper left-end position
SLE2	0F	Clear bottom line and move cursor to bottom left-end position
DC0	10 n	Set period to upper line, last n position 31h <n<37h< td=""></n<37h<>
DC1	11 n	Set line blinking, upper line n ='1' bottom line n='2'
DC2	12 n	Clear line blinking, upper linen ='1', bottom line n='2'
SF1	1E	Clear field 1 and move cursor to field 1, first position
SF2	1E	Clear field 2 and move cursor to field 2, first position

### Safety Regulatory Notices

# CEMARK

This device compiles with the requirements of the EEC directive 89/336/EEC with regard to "Electromagnetic compatibility" and 73/23/EEC "Low Voltage Directive"

FCC

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

(1)This device may not cause harmful interference.

(2)This device must accept any interference received, including interference that may cause undesired operation.

### CAUTION ON LITHIUM BATTERIES

There is adapter of explosion if the battery is replaced incorrectly. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

### LEGISLATION AND WEEE SYMBOL

2002/96/EC Waste Electrical and Electronic Equipment Directive on the treatment, collection, recycling and disposal of electric and electronic devices and their components.

The crossed dustbin symbol on the device means that it should not be disposed of with other household wastes at the end of its working life. Instead, the device should be taken to the waste collection centers for activation of the treatment, collection, recycling and disposal procedure.



To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling. Business users should contact their supplier and check the terms and conditions of the purchase contract. This product should not be mixed with other commercial wastes for disposal.