ACP-2153

Onboard Intel[®] Atom™ D2550 1.86 GHz Processor Multi-Touch Panel PC With 15" TFT LCD

> ACP-2153 Manual 2nd Ed. July 2013

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Packing List

Before you begin operating your PC, please make sure that the following materials are enclosed:

- ACP-2153 Touch Panel PC
- Mounting brackets and screws
- CD-ROM for manual (in PDF format) and drivers

If any of these items should be missing or damaged, please contact your distributor or sales representative immediately.

Safety & Warranty

- 1. Read these safety instructions carefully.
- 2. Keep this user's manual for later reference.
- 3. Disconnect this equipment from any AC outlet before cleaning. Do not use liquid or spray detergents for cleaning. Use a damp cloth.
- 4. For pluggable equipment, the power outlet must be installed near the equipment and must be easily accessible.
- 5. Keep this equipment away from humidity.
- 6. Put this equipment on a firm surface during installation. Dropping it or letting it fall could cause damage.
- 7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
- 8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
- 9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
- 10. All cautions and warnings on the equipment should be noted.
- 11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient over-voltage.
- 12. Never pour any liquid into an opening. This could cause fire or electrical shock.
- 13. Never open the equipment. For safety reasons, only qualified service personnel should open the equipment.
- 14. If any of the following situations arises, get the equipment checked by service personnel:
 - a. The power cord or plug is damaged.
 - b. Liquid has penetrated into the equipment.
 - c. The equipment has been exposed to moisture.

- d. The equipment does not work well, or you cannot get it to work according to the user's manual.
- e. The equipment has been dropped and damaged.
- f. The equipment has obvious signs of breakage.
- DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE IS BELOW -20°C (-4°F) OR ABOVE 60°C (140°F). IT MAY DAMAGE THE EQUIPMENT.

FCC



This device complies with Part 15 FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received including interference that may cause undesired operation.

Caution:

There is a danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions and your local government's recycling or disposal directives.

ACP-2153

Below Table for China RoHS Requirements 产品中有毒有害物质或元素名称及含量

AAEON Panel PC/ Workstation

有毒有害物质或元素					
铅	汞	镉	六价铬	多溴联苯	多溴二苯醚
(Pb)	(Hg)	(Cd)	(Cr(VI))	(PBB)	(PBDE)
~	0	0		0	0
^	0	0	0	0	0
~	0	0	0	0	0
^	0	0	0	0	0
×	0	0	0	0	0
~	0	0	0	0	0
	0	0	0	0	
×	0	0	0	0	0
×	0	0	0	0	0
×	0	0	0	0	0
×	0	0	0	0	0
×	0	0	0	0	0
	(Pb) × × × × × × × × ×	(Pb) (Hg) X O X O X O X O X O X O X O X O X O X O X O X O X O X O X O X O X O X O X O	铅汞锅(Pb)(Hg)(Cd)×○○×○○×○○×○○×○○×○○×○○×○○×○○×○○×○○×○○×○○×○○×○○×○○×○○	铅 汞 锅 六价铬 (Pb) (Hg) (Cd) (Cr(VI)) × 〇 〇 〇	铅 天 锅 六价铬 多溴联苯 (Pb) (Hg) (Cd) (Cr(VI)) (PBB) \times \bigcirc \bigcirc \bigcirc \bigcirc \times \bigcirc \bigcirc \bigcirc

O: 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下。

X:表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T 11363-2006 标准规定的限量要求。

备注:

一、此产品所标示之环保使用期限,系指在一般正常使用状况下。

二、上述部件物质中央处理器、内存、硬盘、光驱、触控模块为选购品。

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4.1 Introduction



General Information

Chapter 1 General Information 1-1

1.1 Introduction

The ACP-2153 operator panel is an Intel[®] Atom[™] D2550 1.86 GHz processor computer that is designed to serve as a human machine interface (HMI). It is a PC-based system with 15" color TFT LCD display, onboard Ethernet controller, multi-COM port interfaces and an audio controller. With a built-in CFast[™] socket, the ACP-2153 is as compact and user friendly as a multi-function computer. In addition, its "fit anywhere" design makes it very flexible and able to be used in many different kinds of installations. It can be VESA 75/100 panel mounted and flush mounted.

For system integrators, this simple, complete, compact and highly integrated system let you easily build an operator panel into your applications. Common industrial applications include factory automation systems, precision machinery, and production process control. It is also suitable for many non-industrial applications, including vending machine, and car park automation. Our operator panel is a reliable, cost-effective solution to your application's processing requirements.

1.2 Specification

System

•	CPU	Onboard Intel [®] Atom™ D2550 1.86 GHz
		Processor
•	System Memory	DDR3 SODIMM x 1, Max. 4 GB (Default
		is 2GB RAM)
•	Ethernet	10/100/1000Base-T, RJ-45 x 2
•	LCD / CRT Controller	Intel [®] NM10
•	I/O Port	USB2.0 x 4
		RS-232 x 2
		RS-232/422/485 x 1
		RJ-45 x 2
		VGA out x 1
		Line-out x 1
		Power switch x 1
		Power input 3-pin terminal block x 1
•	Storage Disk Drive	CFast™ slot x 1
		2.5" SATA Hard Disk Drive x 1
•	Expansion Slot	Mini PCIe Card x 1
•	OS Support	$Windows^{\texttt{®}} XP, Windows^{\texttt{®}}$ 7 32-bit, Linux
		Fedora

Mechanical

Construction Open Frame

l	Multi-Touch Panel PC		A C P - 2 1 5 3
		-	
•	Mounting	VE	SA 75/100, Panel mount
•	Dimension	15	.06"(W) x 10.75"(H) x 2.75"(D)
		(38	32.60mm x 273.06mm x 69.80mm)
•	Carton Dimension	20	.67"(W) x 18.31"(H) x 9.1"(D) (525mm
		x 4	65mm x 230mm)
•	Net Weight	11.45 lb (5.2kg)	
•	Gross Weight	16.52 lb (7.5kg)	

Environmental

•	Operating Temperature	-4°F~140°F (-20°C~60°C)
•	Storage Temperature	-4°F~158°F (-20°C~70°C)
•	Operating Humidity	10% to 90%@ 40°C, non-condensing
•	Vibration	1 g rms/ 5-500Hz/ Operation (with HDD)
•	Shock	20 G peak acceleration (11 msec.
		duration) (with HDD)
•	EMC	CE/FCC Class A

Power Supply

DC Input 9~30V 3-pin terminal block

LCD

•	Display Type	15" TFT LCD
•	Max. Resolution	1024x768
•	Max. Colors	16.7M colors (6/8-bit for R, G, B)
•	Luminance (cd/m ²)	400

Chapter 1 General Information 1-4

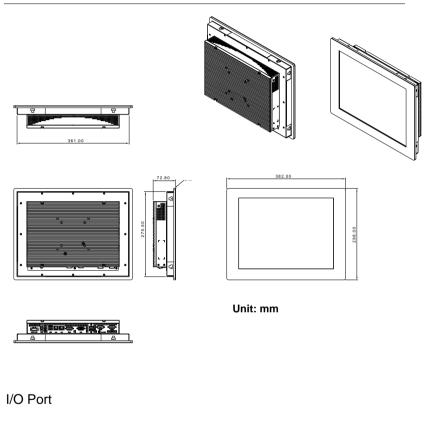
	Multi-Touch Panel PC		A C P - 2 1 5 3
•	Viewing Angle		50° (H),140° (V)
•	Backlight Backlight MTBF (Hours)	LE 50	D 9,000
То	uch Screen		
•	Туре	Pr	ojected capacitive touch screen (two
		рс	ints)
•	Light Transmission	90	%

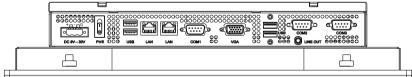
N/A

Lifetime

Chapter 1 General Information 1-5

1.3 Dimension







Hardware Installation

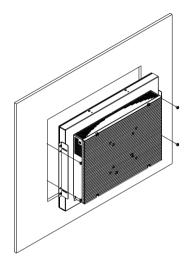
Chapter 2 Quick Installation Guide 2-1

2.1 Panelmount Installation

The display panel can be mounted into the wall. You will need the screws along with the mounting brackets, which be packed in the accessory box. Follow the steps below:

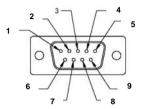
Before you start to follow the instructions, please place the display panel into the wall. See the following illustration on the left.

Complete Illustration



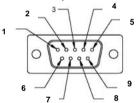
2.2 COM1/2 RS-232/422/485 Serial Port Connector

COM1 (D-sub 9 male)



Pin	Signal	Pin	Signal	
1	DCD	2	RXD	
3	TXD	4	DTR	
5	GND	6	DSR	
7	RTS	8	CTS	
9	RI			

COM2 RS-232/422/485 (D-sub 9 male)



Pin	Signal	Pin	Signal
1	DCD (422TXD-/485DATA-)	2	RXD (422RXD+)
3	TXD (422TXD+/485DATA+)	4	DTR (422RXD-)
5	GND	6	DSR
7	RTS	8	CTS
9	RI/+5Volt/+12Volt		

2.3 Hard Disk Drive Installation

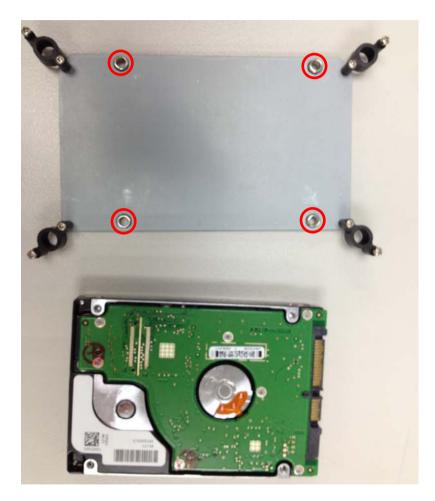
Step 1: Unfasten the screws of the heatsink

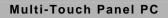


Step 2: Get the Bracket of Hard Disk Drive from the package



Step 3: Fasten the Hard Disk onto the bracket





Step 4: Fasten the screws of the hard disk bracket onto the ACP-2153



A C P - 2 1 5 3

Chapter 3

AMI BIOS Setup

Chapter 3 AMI BIOS Setup 3-1

3.1 System Test and Initialization

These routines test and initialize board hardware. If the routines encounter an error during the tests, you will either hear a few short beeps or see an error message on the screen. There are two kinds of errors: fatal and non-fatal. The system can usually continue the boot up sequence with non-fatal errors.

System configuration verification

These routines check the current system configuration against the values stored in the CMOS memory. If they do not match, the program outputs an error message. You will then need to run the BIOS setup program to set the configuration information in memory.

There are three situations in which you will need to change the CMOS settings:

- 1. You are starting your system for the first time
- 2. You have changed the hardware attached to your system
- 3. The CMOS memory has lost power and the configuration information has been erased.

The ACP-2153 CMOS memory has an integral lithium battery backup for data retention. However, you will need to replace the complete unit when it finally runs down.

3.2 AMI BIOS Setup

AMI BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS RAM so that it retains the Setup information when the power is turned off.

Entering Setup

Power on the computer and press or <F2> immediately. This will allow you to enter Setup.

Main

Set the date, use tab to switch between date elements.

Advanced

Enable disable boot option for legacy network devices.

Chipset

Host bridge parameters.

Boot

Enables/disable quiet boot option.

Security

Set setup administrator password.

Save&Exit

Exit system setup after saving the changes.

<u>Setup Menu</u> Main Setup Menu

Press 'Delete' Key to enter Setup



A C P - 2 1 5 3

Setup submenu: Advanced

Aptio Setup U [.] Main Advanced Chipset Bu		ght (C) 2011 American Save & Exit	Megatrends, Inc.
 ACPI Settings S5 RTC Wake Settings CPU Configuration SATA Configuration USB Configuration Super IO Configuration H/W Monitor 			Enable system to wake from S5 using RTC alarm
			<pre>++: Select Screen fl: Select Itm Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.14	1219. Copyrigh	t (C) 2011 American Me	egatrends, Inc.

ACPI Settings

Aptio Setup Advanced	Utility – Copyright (C) 2011 American	Megatrends, Inc.
ACPI Settings		Select the highest ACPI sleep state the system will enter
ACPI Sleep State		when the SUSPEND button is pressed.
		++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.1	4.1219. Copyright (C) 2011 American M	egatrends, Inc.

Options summary:

Suspend mode	Suspend Disabled			
	S1 (CPU Stop Clock)			
	S3 (Suspend to RAM)	Optimal Default, Failsafe Default		
Select the ACPI state used for System Suspend				

S5 RTC Wake Settings

Aptio S Advanced	Setup Utility – Co	pyright (C) 2011 American	Megatrends, Inc.
Wake system with Fixe	ed Time [Enable or disable System wake
Wake system with Dyna	amic Time [Disabled]	on alarm event. When enabled, System will wake on the hr::min::sec specified ++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F3: Optimized Defaults F4: Save & Exit ESC: Exit
Versio	on 2.14.1219. Copy	right (C) 2011 American Me	gatrends, Inc.

Options summary:

Wake system with Fixed Time		Enable	
		Disable	Optimal Default, Failsafe Default
	Wake up hour	0	
	Wake up minute	0	
	Wake up second	0	
Wake system with Dynamic Time		Enable	
		Disable	Optimal Default, Failsafe Default
	Wake up minute increase	0	
Select RTC wake mode			

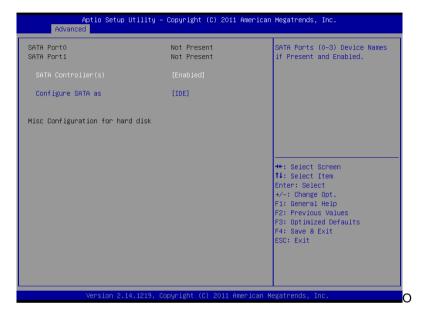
CPU Configuration

Aptio Setup Utility - Advanced	Copyright (C) 2011 American	Megatrends, Inc.
CPU Configuration Processor Type	Intel(R) Atom(TM) CPU	Enabled for Windows XP and Linux (OS optimized for Hyper-Threading Technology)
EMT64 Processor Speed System Bus Speed Ratio Status Actual Ratio System Bus Speed Processor Stepping Microcode Revision	Supported 1865 MHz 533 MHz 14 14 533 MHz 30661 269	and Disabled for other OS (OS not optimized for Hyper-Threading Technology).
L1 Cache RAM L2 Cache RAM Processor Core Huper-Threading	2056 k 2x512 k Dual Supported	++: Select Screen 14: Select Item
Hyper-Threading	[Enabled]	Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.14.1219. Co	pyright (C) 2011 American M	egatrends, Inc.

Options summary :

Hyper-Threading	Disabled			
	Enabled	Optimal Default, Failsafe Default		
En/Disable CPU Hyper-Threading function				

SATA Configuration



Options summary :

SATA Mode	IDE	Default	
	AHCI		
IDE: Configure SATA controllers as legacy IDE			
AHCI: Configure SATA controllers to operate in AHCI mode			
En/Disable SATA Port			

USB Configuration

Aptio Setup Utility - Advanced	Copyright (C) 2011 American	Megatrends, Inc.
USB Configuration		Enables Legacy USB support.
USB Devices: 1 Drive, 1 Keyboard		AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available
Legacy USB Support		only for EFI applications.
Mass Storage Devices: SanDisk Cruzer 8.02	[Auto]	
		↔: Select Screen ↑↓: Select Item
		Enter: Select +/-: Change Opt.
		F1: General Help F2: Previous Values
		F3: Optimized Defaults F4: Save & Exit
		ESC: Exit
Version 2.14.1219. Co	opyright (C) 2011 American M	egatrends, Inc.

Options summary:

Enabled	Optimal Default, Failsafe Default		
Disabled			
Auto			
Enables BIOS Support for Legacy USB Support. When enabled, USB can be functional in			
legacy environment like DOS.			
AUTO option disables legacy support if no USB devices are connected			
Auto	Optimal Default, Failsafe Default		
Floppy			
Forced FDD			
	Disabled Auto SB Support. When if no USB device Auto Floppy		

	Hard Disk		
	CDROM		
If Auto. USB devices less than 530MB will be emulated as Floppy and remaining as Floppy			
and remaining as hard drive. Forced FDD option can be used to force a HDD formatted drive			
to boot as FDD(Ex. ZIP drive)			

Super IO Configuration

Aptio Setup Utility - Advanced	- Copyright (C) 2011 American	Megatrends, Inc.
Super IO Configuration		Set Parameters of Serial Port 1 (COMA)
Super IO Chip ▶ Serial Port 1 Configuration ▶ Serial Port 2 Configuration ▶ Serial Port 3 Configuration	IT8783F	1 (conn)
Restore AC Power Loss	[Power Off]	
		++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Helo
		F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.14.1219. 0	Copyright (C) 2011 American M	egatrends, Inc.

Serial Port 1 Configuration

Aptio Setup Utility - Advanced	Copyright (C) 2011 American	Megatrends, Inc.
Serial Port 1 Configuration		Enable or Disable Serial Port (COM)
Serial Port Device Settings	(Enabled) IO=3F8h; IRQ=4;	(COM)
Change Settings	[Auto]	
		++: Select Screen ↑↓: Select Item
		Enter: Select +∕–: Change Opt. F1: General Help
		F2: Previous Values F3: Optimized Defaults
		F4: Save & Exit ESC: Exit
Version 2.14.1219. Co	pyright (C) 2011 American M	egatrends, Inc.

Serial Port 2 Configuration

Aptio Setup Utility – Advanced	Copyright (C) 2011 American	Megatrends, Inc.
Serial Port 2 Configuration		Enable or Disable Serial Port (COM)
Serial Port Device Settings	[Enabled] IO=2F8h; IRQ=3;	(604)
Change Settings	[Auto]	
COM2 Type Select	[RS232]	
		++: Select Screen
		↑↓: Select Item Enter: Select
		+/−: Change Opt. F1: General Help
		F2: Previous Values F3: Optimized Defaults
		F4: Save & Exit
		ESC: Exit
Version 2.14.1219. Co	pyright (C) 2011 American M	egatrends, Inc.

Serial Port 3 Configuration

	Aptio Setup Utility – (Advanced	Copyright (C) 2011 American	Megatrends, Inc.
Serial	Port 3 Configuration		Enable or Disable Serial Port (COM)
Serial Device	Port Settings	(Enabled) IO=3E8h; IRQ=10;	(COM)
Change Device	Settings Mode	[Auto] [Standard Serial Po]	
			++: Select Screen
			14: Select Item Enter: Select +/-: Change Opt.
			F1: General Help F2: Previous Values F3: Optimized Defaults
			F4: Save & Exit ESC: Exit
	Version 2.14.1219. Cop	oyright (C) 2011 American Mu	egatrends, Inc.

Options summary:

Serial Port	Disabled	
	Enabled	
Allows BIOS to En/Disable correspond serial port.		
Change Settings	Auto	Default
(Serial Port 1)	IO=3F8h; IRQ=4;	
	IO=3F8h; IRQ=3,4;	
	IO=2F8h; IRQ=3,4;	
	IO=3E8h; IRQ=10,11;	
	IO=2E8h; IRQ=10,11	

Allows BIOS to Select Ser	ial Port resource.	
Change Settings	Auto	Default
(Serial Port 2)	IO=2F8h; IRQ=3;	
	IO=3F8h; IRQ=3,4;	
	IO=2F8h; IRQ=3,4;	
	IO=3E8h; IRQ=10,11;	
	IO=2E8h; IRQ=10,11	
COM2 Type Select	RS232	Default
	RS422	
	RS485	
Allows BIOS to Select Ser	ial Port resource.	•
Change Settings	Auto	Default
(Serial Port 3)	IO=3E8h; IRQ=11;	
	IO=3E8h; IRQ=10,11;	
	IO=2E8h; IRQ=10,11;	
	IO=3E8h; IRQ=10,11;	
	IO=2E8h; IRQ=10,11	
Device Mode	Standard Serial Port Mode	Default
	IrDA 1.0 (HP SIR) Mode	
	ASKIR Mode	
Restore on AC Power	Power Off	Default
Loss	Power On	
	Last State	
Select the action system to	b take when restoring from power loss.	

H/W Monitor

Aptio S Advanced	Setup Utility – Copyright (C) 2011 American	Megatrends, Inc.
	: +42 C : +42 C : +36 C : 4891 RPM : +1.245 V : +1.541 V : +3.412 V : +5.241 V : +5.242 V : +5.162 V : +3.271 V	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults</pre>
	on 2.14.1219. Copyright (C) 2011 American Me	F4: Save & Exit ESC: Exit

Chipset

Aptio Setup Utility – Copyright (C) 2011 American Main Advanced <mark>Chipset</mark> Boot Security Save & Exit	Megatrends, Inc.
▶ Host Bridge ▶ South Bridge	Host Bridge Parameters
	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.14.1219. Copyright (C) 2011 American Me	egatrends, Inc.

Host Bridge

Aptio Setup Utility - Chipset	Copyright (C) 2011 American	Megatrends, Inc.
▶ Intel IGD Configuration ******* Memory Information ****** Memory Frequency Total Memory DIMM#0 DIMM#1	1067 MHz(DDR3) 2048 MB Not Present 2048 MB	Config Intel IGD Settings.
		++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.14.1219. Co	pyright (C) 2011 American M	egatrends, Inc.

Graphics Configuration

Aptio Setup Utility Chipset	– Copyright (C) 2011 America	n Megatrends, Inc.
Intel IGD Configuration Auto Disable IGD IGFX - Boot Type LCD Panel Type LVDSI Backlight Controller Control LVDS1 Fixed Graphics Memory Size	[Enabled] [VBIOS Default] [1024x768 24Bit] [50%] [Enable] [256MB]	Auto disable IGD upon external GFX detected. ++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.14.1219.	Copyright (C) 2011 American N	Megatrends, Inc.

Options summary :

Auto Disable IGE	Disable		
	Enable	Default	
Auto disable IGE upon external GFX detected			
IGFX – Boot Type	VBIOS Default	Default	
	CRT		
	1 st LVDS		
	CRT+1 st LVDS		
Select boot display device			
VBIOS Default – Display automatically according to VBIOS algorithm			

LCD Panel Type	1024x768 24Bit	Default	
Select LCD panel used by	internal Graphics Device by	selecting the appropriate	
setup item.			
LVDS1 Backlight	100%		
Controller	75%	Default	
	50%		
	25%		
	0%		
Adjust backlight brightness			
Control LVDS1	Disable		
	Enable	Default	
Select LFP source			
Fixed Graphics Memory	128MB		
Size	256MB	Default	

South Bridge

Aptio Setup Chipset	Utility – Copyright (C) 2011 American	Megatrends, Inc.
Power Mode > TPT Devices > PCI Express Root Port 0 > PCI Express Root Port 1 > PCI Express Root Port 2 > PCI Express Root Port 3	[ATX Type]	Enable/Disable Intel(R) IO Controller Hub (TPT) devices
		<pre>++: Select Screen T4: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.3	14.1219. Copyright (C) 2011 American M	egatrends, Inc.

TPT Device

Aptio Setup Chipset	Utility – Copyright (C) 2011 America	n Megatrends, Inc.
Azalia Controller R8111E #1 Controller R8111E #2 Controller	[HD Audio] [Enabled] [Enabled]	Azalia Controller +f: Select Screen 11: Select Item Enter: Select 7/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.:	14.1219. Copyright (C) 2011 American I	Hegatrends, Inc.

	Aptio Setup Utility - Chipset	Copyright (C) 2011 American	Megatrends, Inc.
PCI Express Po		[Enabled]	Enable / Disable PCI Express Root Port 0. ++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
	Version 2.14.1219. C	opyright (C) 2011 American M	egatrends, Inc.

Aptio Se Chips	etup Utility – Copyright (C) 2011 A <mark>set</mark>	merican Megatrends, Inc.
PCI Express Port 1	[Auto]	Enable / Disable PCI Express Root Port 1. **: Select Screen 14: Select Item
	n 2,14.1219. Copyright (C) 2011 Ame	Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

Aptio Setup Chipset	Utility – Copyright (C) 2011 Am	erican Megatrends, Inc.
PCI Express Port 2	[Auto]	Enable / Disable PCI Express Root Port 2.
		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.1	4.1219. Copyright (C) 2011 Amer	ican Megatrends, Inc.

Aptio Setup Chipset	Utility – Copyright (C) 2011 Ame	rican Megatrends, Inc.
PCI Express Port 3		Enable / Oisable PCI Express Root Port 3.
		<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.1	4.1219. Copyright (C) 2011 Ameri	can Megatrends, Inc.

Options summary :

Power Mode	АТХ Туре	Optimal Default, Failsafe Default		
	АТ Туре			
Select Power Mode:				
ATX Type: Normal ACPI support				
AT Type: Suspend/Sleep disabled, and Always On when restoring from power				
failure.				
Azalia HD Audio	Disabled			
	HD Audio	Optimal Default, Failsafe Default		
Enabling/Disabling HD Audio controller.				

A C P - 2 1 5 3

R8111 #x Controller	Disabled		
	Enabled	Optimal Default, Failsafe Default	
Enabling/Disabling 8111E controller			
PCI Express Root Port 0	Disabled		
	Enabled	Optimal Default, Failsafe Default	
Enabling/Disabling PCI Express root ports			
PCI Express Root Port x	Disabled		
	Enabled		
	Auto	Optimal Default, Failsafe Default	
Enabling/Disabling PCI Express root ports			

Setup submenu: Boot

Aptio Setup Utility – Main Advanced Chipset <mark>Boot</mark> Secu	Copyright (C) 2011 American urity Save & Exit	Megatrends, Inc.
Boot Configuration Quiet Boot Launch 8111E PXE OpROM	[Enabled] [Disabled]	Sets the system boot order
Boot Option Priorities Boot Option #1 Boot Option #2	[UEFI: SanDisk Cruz] [SanDisk Cruzer 8.02]	
Hand Drive BBS Priorities		
		++: Select Screen
		t↓: Select Item Enter: Select +/-: Change Opt.
		F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit
		ESC: Exit
Version 2.14.1219. Co	opyright (C) 2011 American M	legatrends, Inc.

Options summary :

Quiet Boot	Disabled			
	Enabled	Default		
En/Disable showing boot logo.				
Launch 8111E PXE OpROM	Disabled	Default		
Enabled				
En/Disable PXE boot for 8111E LAN				

Setup submenu: Security

Aptio Setup Utili Main Advanced Chipset Boot	ty – Copyright (C) 2011 American Security Save & Exit	Megatrends, Inc.
Password Description If ONLY the Administrator's pas then this only limits access to		Set Administrator Password
only asked for when entering Se If ONLY the User's password is is a power on password and must boot or enter Setup. In Setup t have Administrator rights. The password length must be in the following range:	set, then this be entered to he User will	
Minimum length Maximum length	3 20	++: Select Screen 14: Select Item
Administrator Password User Password		Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.14.121	9. Copyright (C) 2011 American M	egatrends, Inc.

Change User/Supervisor Password

You can install a Supervisor password, and if you install a supervisor password, you can then install a user password. A user password does not provide access to many of the features in the Setup utility. If you highlight these items and press Enter, a dialog box appears which lets you enter a password. You can enter no more than six letters or numbers. Press Enter after you have typed in the password. A second dialog box asks you to retype the password for confirmation. Press Enter after you have retyped it correctly. The password is required at boot time, or when the user enters the Setup utility. Removing the Password

Highlight this item and type in the current password. At the next dialog box press Enter to disable password protection.

Setup submenu: Exit

Aptio Setup Utility – Copyright (C) 2011 America Main Advanced Chipset Boot Security Save & Exit	n Megatrends, Inc.
Save Changes and Exit Discard Changes and Exit Save Changes and Reset Discard Changes and Reset	Exit system setup after saving the changes.
Save Options Save Changes Discard Changes	
Restore Defaults Save as User Defaults Restore User Defaults	
Boot Override UEFI: SanDisk Cruzer 8.02 SanDisk Cruzer 8.02	+: Select Screen 14: Select Item Enter: Select +/-: Change Opt, F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American	Wegatrends, Inc.

Chapter

Driver Installation

Chapter 4 Driver Installation 4 - 1

The ACP-2153 comes with a CD-ROM that contains all drivers and utilities that meet your needs.

Follow the sequence below to install the drivers:

Step 1 – Install Chipset Driver
Step 2 – Install VGA Driver
Step 3 – Install LAN Driver
Step 4 – Install Audio Driver
Step 5 – Install AHCI Driver
Step 6 – Install Touch Panel Driver

Please read instructions below for further detailed installations.

4.1 Installation:

Insert the ACP-2153 CD-ROM into the CD-ROM Drive. And install the drivers from Step 1 to Step 6 in order.

Step 1 – Install Chipset Driver

- 1. Click on the **STEP1-CHIPSET** and select the OS folder your system is
- 2. Double click on the .exe file located in each OS folder
- 3. Follow the instructions that the window shows
- 4. The system will help you install the driver automatically

Step 2 – Install VGA Driver

For Windows[®] 7

- Click on the STEP2-VGA folder and select the folder of WIN7_32
- 2. Double click on the **Setup.exe** file
- 3. Follow the instructions that the window shows
- 4. The system will help you install the driver automatically

For Windows[®] XP

- 1. Install Framework 3.5
 - Double click on the *dotnetfx35.exe*
 - Follow the instructions that the window shows
 - The system will help you install the driver automatically

- 2. Install IEMGD
 - Double click on the *WindowsDriverSETUP.exe*
 - Select the configuration
 - Follow the instructions that the window shows
 - The system will help you install the driver automatically



INTEL SOFTW User)	ARE LICENSE AGREEMEI	NT (OEM / IHV / ISV D	istribution & Single 🖌
IMPORTANT -	READ BEFORE COPYING	INSTALLING OR USI	NG.
"Software") un By loading or u	bad this software and any a il you have carefully read th sing the Software, you agree to so agree, do not install o	e following terms and c e to the terms of this Ag	onditions.
Please Also No	te:		
	Driginal Equipment Manufac r Independent Software Ve applies;		
	nd-User, then only Exhibit / EEMENT, applies.	A, the INTEL END-USE	R SOFTWARE
	C I disagree	Install	Close

Chapter 4 Driver Installation 4 - 4

ACP-2153

The software you are installing has not passed Windows Logo testing to verify its compatibility with Windows XP. (<u>Tell me why</u> this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the software vendor for software that has passed Windows Logo testing.

If you want to update driver, please uninstall driver first.

Uninstall IEMGD

- 1. Double click on the *WindowsDriverSETUP.exe*
- 2. Follow the instructions that the window shows
- 3. The system will help you uninstall the driver automatically

Documents	Driver	License License	sdk 🚺
Utilities	History 文字文件 1 KB	WindowsDriverSETUP Windows NT Command Script 1 KB	
	IntelR Embedded Media and Graphics Driver Setup Installs driver and application files Installs driver and application files Nest		

Step 3 – Install LAN Driver

- 1. Click on the **STEP3-LAN** folder and select the OS folder your system is
- 2. Double click on the setup.exe located in each OS folder
- 3. Follow the instructions that the window shows
- 4. The system will help you install the driver automatically
- Step 4 Install Audio Driver
 - 1. Click on the **STEP4-AUDIO** folder and select the OS folder your system is
 - 2. Double click on the Setup.exe located in each OS folder
 - 3. Follow the instructions that the window shows
 - 4. The system will help you install the driver automatically
- Step 5 Install AHCI Driver
 - 1. Click on the **STEP5-AHCI** folder and select the **WIN7_32** folder
 - 2. Double click on the *setup.exe* file
 - 3. Follow the instructions that the window shows
 - 4. The system will help you install the driver automatically
- Step 6 Install Touch Panel Driver
 - 1. Click on the **STEP6-TOUCH** folder and select the **XP** folder
 - 2. Double click on the *ModifyDBArea.exe* located in the *XP* folder

- 3. Follow the instructions that the window shows
- 4. The system will help you install the driver automatically

Appendix A

Programming the Watchdog Timer

Appendix A Programming the Watchdog Timer A-1

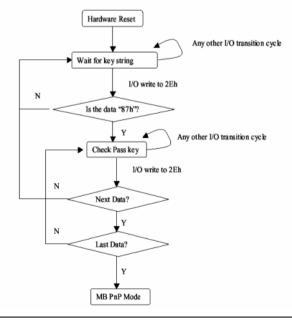
A.1 Programming

ACP-2153 utilizes ITE 8783 chipset as its watchdog timer controller. Below are the procedures to complete its configuration and the AAEON initial watchdog timer program is also attached based on which you can develop customized program to fit your application.

Configuring Sequence Description

After the hardware reset or power-on reset, the ITE 8783 enters the

normal mode with all logical devices disabled except KBC. The initial state (enable bit) of this logical device (KBC) is determined by the state of pin 121 (DTR1#) at the falling edge of the system reset during power-on reset.



Appendix A Programming the Watchdog Timer A-2

There are three steps to complete the configuration setup: (1) Enter the MB PnP Mode; (2) Modify the data of configuration registers; (3) Exit the MB PnP Mode. Undesired result may occur if the MB PnP Mode is not exited normally.

(1) Enter the MB PnP Mode

To enter the MB PnP Mode, four special I/O write operations are to be performed during Wait for Key state. To ensure the initial state of the key-check logic, it is necessary to perform four write opera-tions to the Special Address port (2EH). Two different enter keys are provided to select configuration ports (2Eh/2Fh) of the next step.

	Address Port	Data Port
87h, 01h, 55h, 55h:	2Eh	2Fh

(2) Modify the Data of the Registers

All configuration registers can be accessed after entering the MB PnP Mode. Before accessing a selected register, the content of Index 07h must be changed to the LDN to which the register belongs, except some Global registers.

(3) Exit the MB PnP Mode

Set bit 1 of the configure control register (Index=02h) to 1 to exit the MB PnP Mode.

WatchDog Timer Configuration Registers

LDN	Index	R/W	Reset	Configuration Register or Action
All	02h	W	NA	Configure Control

07h	71h	R/W	00h	Watch Dog Timer Control Register
07h	72h	R/W	001s0000b	Watch Dog Timer Configuration Register
07h	73h	R/W	38h	Watch Dog Timer Time-out Value (LSB) Register
07h	74h	R/W	00h	Watch Dog Timer Time-out Value (MSB) Register

Configure Control (Index=02h)

This register is write only. Its values are not sticky; that is to say, a hardware reset will automatically clear the bits, and does not require the software to clear them.

Bit	Description
7-2	Reserved
1	Returns to the "Wait for Key" state. This bit is used when the configuration sequence is completed.
0	Resets all logical devices and restores configuration registers to their power-on states.

Watch Dog Timer 1, 2, 3 Control Register (Index=71h,81h,91h Default=00h)

Bit	Description
7	WDT Timeout Enable(WTE)
	1: Disable.
	0: Enable.
6	WDT Reset upon Mouse Interrupt(WRKMI)
	0: Disable.
	1: Enable.
5	WDT Reset upon Keyboard Interrupt(WRKBI)
	0: Disable.
	1: Enable.
4	Reserved
3-2	Reserved
1	Force Time-out(FTO)
	This bit is self-clearing.
0	WDT Status(WS)
	1: WDT value reaches 0.
	0: WDT value is not 0.

Appendix A Programming the Watchdog Timer A-4

Watch Dog Timer 1, 2, 3 Configuration Register (Index=72h, 82h, 92h Default=001s0000b)

Bit	Description
7	WDT Time-out Value Select 1 (WTVS)
	1: Second
	0: Minute
6	WDT Output through KRST (Pulse) Enable(WOKE)
	1: Enable
	0: Disable
5	WDT Time-out value Extra select(WTVES)
	1: 64ms x WDT Timer-out value (default = 4s)
	0: Determined by WDT Time-out value select 1 (bit 7 of this register)
4	WDT Output through PWROK (Pulse) Enable(WOPE)
	1: Enable
	0: Disable
	During LRESET#, this bit is selected by JP7 power-on strapping option
3-0	Select interrupt level Note1 for WDT(SIL)

Watch Dog Timer 1,2,3 Time-Out Value (LSB) Register

(Index=73h,83h,93h, Default=38h)

Bit	Description
7-0	WDT Time-out Value 7-0(WTV)

Watch Dog Timer 1,2,3 Time-Out Value (MSB) Register

(Index=74h,84h,94h Default=00h)

Bit	Description
7-0	WDT Time-out Value 15-8(WTV)

A.2 ITE8783 Watchdog Timer Initial Program

.MODEL SMALL CODE Main[.] CALL Enter_Configuration_mode CALL Check_Chip mov cl, 7 call Set_Logic_Device ;time setting mov cl, 10 ; 10 Sec dec al Watch_Dog_Setting: ;Timer setting mov al, cl mov cl, 73h call Superio_Set_Reg ;Clear by keyboard or mouse interrupt mov al, 0f0h mov cl, 71h call Superio_Set_Reg ;unit is second. mov al, 0C0H mov cl, 72h

A C P - 2 1 5 3

call Superio_Set_Reg ; game port enable mov cl, 9 call Set Logic Device

Initial_OK: CALL Exit_Configuration_mode MOV AH,4Ch INT 21h

Enter_Configuration_Mode PROC NEAR MOV SI,WORD PTR CS:[Offset Cfg_Port]

MOV DX,02Eh MOV CX,04h Init_1: MOV AL,BYTE PTR CS:[SI] OUT DX,AL INC SI LOOP Init_1 RET Enter_Configuration_Mode ENDP

Exit_Configuration_Mode PROC NEAR MOV AX,0202h

A C P - 2 1 5 3

CALL Write_Configuration_Data

RET

Exit_Configuration_Mode ENDP

Check_Chip PROC NEAR

MOV AL,20h CALL Read_Configuration_Data CMP AL,87h JNE Not_Initial

MOV AL,21h CALL Read_Configuration_Data CMP AL,81h JNE Not Initial

Need_Initial: STC RET Not_Initial: CLC RET Check_Chip ENDP Read_Configuration_Data PROC NEAR MOV DX,WORD PTR CS:[Cfg_Port+04h]

Appendix A Programming the Watchdog Timer A-8

OUT DX,AL

MOV DX,WORD PTR CS:[Cfg_Port+06h]

IN AL,DX

RET

Read_Configuration_Data ENDP

Write_Configuration_Data PROC NEAR

MOV DX,WORD PTR CS:[Cfg_Port+04h]

OUT DX,AL

XCHG AL,AH

MOV DX,WORD PTR CS:[Cfg_Port+06h]

OUT DX,AL

RET

Write_Configuration_Data ENDP

Superio_Set_Reg proc near

push ax

MOV DX,WORD PTR CS:[Cfg_Port+04h]

mov al,cl

out dx,al

pop ax

inc dx

out dx,al

ret

Superio_Set_Reg endp.Set_Logic_Device proc near

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Set_Logic_Device proc near push ax push cx xchg al,cl mov cl,07h call Superio_Set_Reg pop cx pop ax ret Set_Logic_Device endp

;Select 02Eh->Index Port, 02Fh->Data Port Cfg_Port DB 087h,001h,055h,055h DW 02Eh,02Fh

END Main

.

Note: Interrupt level mapping 0Fh-Dh: not valid 0Ch: IRQ12

03h: IRQ3 02h: not valid 01h: IRQ1 00h: no interrupt selected

Appendix A Programming the Watchdog Timer A-10



I/O Information

B.1 I/O Address Map

⊿ · 📗 Input/output (IO)
[00000000 - 0000001F] Direct memory access controller
📲 [0000002C - 0000002D] Programmable interrupt controller
19 [0000004E - 0000004F] Motherboard resources
19 [00000050 - 00000053] System timer
19 [00000061 - 00000061] Motherboard resources
19 [00000062 - 00000063] Motherboard resources
19 [00000063 - 00000063] Motherboard resources
19 [00000065 - 00000065] Motherboard resources
19 [00000065 - 0000006F] Motherboard resources
19 [00000067 - 00000067] Motherboard resources
19 [00000070 - 00000070] Motherboard resources
19 [00000072 - 0000007F] Motherboard resources
19 [0000080 - 0000080] Motherboard resources
19 [00000080 - 00000080] Motherboard resources
19 [00000084 - 00000086] Motherboard resources

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19 [00000400 - 0000047F] Motherboard resources
19 [00000400 - 0000047F] Motherboard resources
19 [00000600 - 0000061F] Motherboard resources
19 [00000680 - 0000069F] Motherboard resources
[100000A00 - 00000A1F] Motherboard resources

Multi-Touch Pa	nel PC	;
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ACP-2153

🏺 [0000F040 - 0000F05F] Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CB
🏺 [0000F060 - 0000F07F] Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CA
🟺 [0000F080 - 0000F09F] Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C9
🏺 [0000F0A0 - 0000F0BF] Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C8

B.2 1st MB Memory Address Map

A Memory
19 [0000000 - 00000FFF] Motherboard resources
19 [00000000 - 00000FFF] Motherboard resources
I000A0000 - 000BFFFF] Intel(R) Graphics Media Accelerator 3600 Series
1 [000C0000 - 000DFFFF] PCI bus
1 [000F0000 - 000FFFFF] PCI bus
[DFC00000 - DFCFFFF] Intel(R) Graphics Media Accelerator 3600 Series
[DFE00000 - DFEFFFFF] Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0
🚽 🖟 [DFF05000 - DFF053FF] Intel(R) 82801G (ICH7 Family) USB2 Enhanced Host Controller - 27CC
E0000000 - EFFFFFF] System board
[FFC00000 - FFFFFFF] Motherboard resources

ACP-2153

B.3 IRQ Mapping Chart

Interrupt request (IRQ)	
(ISA) 0x00000000 (00)	System timer
(ISA) 0x00000003 (03)	Communications Port (COM1)
	Communications Port (COM5)
(ISA) 0x00000008 (08)	System CMOS/real time clock
	Communications Port (COM2)
	Numeric data processor
(ISA) 0x00000051 (81)	Microsoft ACPI-Compliant System
(ISA) 0x00000052 (82)	Microsoft ACPI-Compliant System
(ISA) 0x00000053 (83)	Microsoft ACPI-Compliant System
(ISA) 0x00000054 (84)	Microsoft ACPI-Compliant System
	Microsoft ACPI-Compliant System
(ISA) 0x00000056 (86)	Microsoft ACPI-Compliant System
	Microsoft ACPI-Compliant System
	Microsoft ACPI-Compliant System
	Microsoft ACPI-Compliant System
<u>III (ISA) 0x000005A (90)</u>	Microsoft ACPI-Compliant System
	Microsoft ACPI-Compliant System
(ISA) 0x00000060 (96)	Microsoft ACPI-Compliant System
19 (ISA) 0x0000061 (97)	Microsoft ACPI-Compliant System
	Microsoft ACPI-Compliant System
	Microsoft ACPI-Compliant System
	Microsoft ACPI-Compliant System
ISA) 0x00000065 (101)	Microsoft ACPI-Compliant System
(ISA) 0x0000066 (102)	Microsoft ACPI-Compliant System
19 (ISA) 0x00000067 (103)	Microsoft ACPI-Compliant System
	Microsoft ACPI-Compliant System
(ISA) 0x00000069 (105)	Microsoft ACPI-Compliant System
ISA) 0x0000006A (106)	Microsoft ACPI-Compliant System
	Microsoft ACPI-Compliant System
ISA) 0x000006C (108)	Microsoft ACPI-Compliant System

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(ISA) 0x000008F (143)	1

Microsoft ACPI-Compliant System Microsoft ACPI-Compliant System

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	(ISA) 0x00000092 (146)
	(ISA) 0x00000093 (147)
	(ISA) 0x00000094 (148)
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	(ISA) 0x00000096 (150)
	(ISA) 0x00000097 (151)
	(ISA) 0x00000098 (152)
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	(ISA) 0x000000AB (171)
	(ISA) 0x000000AF (175)
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	(ISA) 0x000000B2 (178)

Microsoft ACPI-Compliant System Microsoft ACPI-Compliant System

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	(ISA) 0x000000B3 (179)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B4 (180)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B5 (181)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B6 (182)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B7 (183)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B8 (184)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B9 (185)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BA (186)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BB (187)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BC (188)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BD (189)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BE (190)	Microsoft ACPI-Compliant System
	(PCI) 0x0000000A (10)	Intel(R) 82801G (ICH7 Family) SMBus Controller - 27DA
Ş	(PCI) 0x00000010 (16)	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CB
Ū	(PCI) 0x00000012 (18)	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CA
💗	(PCI) 0x00000013 (19)	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C9
	(PCI) 0x00000013 (19)	Standard AHCI 1.0 Serial ATA Controller
	(PCI) 0x00000016 (22)	High Definition Audio Controller
🖗	(PCI) 0x00000017 (23)	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C8
💗	(PCI) 0x00000017 (23)	Intel(R) 82801G (ICH7 Family) USB2 Enhanced Host Controller - 27CC
	(PCI) 0xFFFFFFFC (-4)	Intel(R) Graphics Media Accelerator 3600 Series
	(PCI) 0xFFFFFFFD (-3)	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D2
	(PCI) 0xFFFFFFFE (-2)	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0

B.4 DMA Channel Assignments

Direct memory access (DMA)