

Report NO: 10P010009

# AEC-6620

Fanless embedded controller with Intel Atom Processor

## P5 Test Report

Summary	<input checked="" type="checkbox"/> <b>Pass</b> <input type="checkbox"/> <b>Fail</b> <input type="checkbox"/> <b>Pass with Deviation</b> <b>Comment:</b> _____			
	<b>Test Result Summary</b>			
	Critical	Major	Minor	Enhancement
Defect Found	0	0	0	0
Defect Unsolved	0	0	0	0

Issue date	Approval	Test Engineer
2010 / 06 /01	Jansin Lee	Allen Hsu

## Platform Information:

<b>Product Model</b>	<b>AEC-6620</b>
<b>Description</b>	Fanless embedded controller with Intel Atom Processor
<b>Test Configuration</b>	<ul style="list-style-type: none"> <li>↳ <b>New product</b></li> <li>↳ <b>CPU Board</b> : EPIC-9457 A1.0-A</li> <li>↳ <b>Carrier Board</b> : N/A</li> <li>↳ <b>BIOS</b> : AEC-6620 BIOS Rev1.1 (05/21/2010)</li>   <li>↳ <b>Chipset</b> :</li> <li>↳ <b>CPU</b> : Intel Atom N270 1.6GHz</li> <li>↳ <b>North Bridge</b> : Intel 945GSE+</li> <li>↳ <b>South Bridge</b> : ICH7-M</li> <li>↳ <b>VGA Chipset</b> : Intel 945GSE+</li> <li>↳ <b>Audio Chipset</b> : Realtek ALC655</li> <li>↳ <b>Ethernet Chipset</b> : Intel 82574L Gigabit</li> <li>↳ <b>I/O Chipset</b> : IT8781F</li>   <li>↳ <b>Remark</b> : P5 Test Report for AEC-6620</li> </ul>

Item	Device Information	Test Item
PCB Model / Version	EPIC-9457 / A1.0-A	1~8
BIOS / Version	AEC-6620 BIOS Rev1.1 (05/21/2010)	1~8
CPU Type	Intel Atom N270 1.6GHz	1~8
Memory Type	A-DATA DDR2 667 SODIMM 1GB (A-DATA AD29608A8A-3EG)	1~8
SATA HDD	N/A	1~8
LCD	HANNS.G LCD Monitor HK191H - HSG1049	1~8
Compact Flash	Transcend CompactFlash 16GB	1~8
Riser Card	N/A	N/A
Backplane	N/A	N/A
OS Install	Fedora Core 10 Windows XP Professional English Version V2002 Service Pack 3 Windows Vista Ultimate English Version Service Pack 2 Windows 7 Ultimate English Version	1,2
Power Supply	AC Power : EDAC 12V(EA1050A-120)	1,2

## Summary Table of contents:

Summary Table of contents .....	2
Platform Information .....	3
1. I/O Peripheral Function Test .....	4
2. Power Consumption Test .....	7
3. Timer Accuracy Test .....	7
4. Network HUB / LAN Connection Test .....	7
5. Hardware compatibility .....	8
6. O.S. Compatibility Test .....	13
7. BIOS Function Test .....	15
8. Performance Test .....	17

There are 3 test results in this document; they are described as follows:

**Pass:** Function worked perfectly

**Fail:** Function failed and must be modified in the next version

**N/A:** Outside of specifications or no test equipment

The test report would be tested and updated after version changed.

## Test Result for Certification

### 1. I/O Peripheral Function Test

I/O Peripheral Function Test –I/O Function	Result		
	Pass	Fail	N/A
Floppy Connector / Driver A:			X
IDE Channel 0 Master			X
IDE Channel 0 Slave			X
IDE Channel 2 Master			X
IDE Channel 2 Slave			X
RAID 0 Function Test			X
RAID 1 Function Test			X
SATA1 / Serial ATA Connector 1			X
SATA2 / Serial ATA Connector 2			X
SATA3 / Serial ATA Connector 3			X
SATA4 / Serial ATA Connector 4			X
Compact Flash	X		
DOC (Disk On Chip)			X
DOM (Disk On Module) – 40 Pin			X
DOM (Disk On Module) – 44 Pin			X
COM 1-232			X
COM 2-232	X		
COM 2-422	X		
COM 2-485	X		
COM 3-232			X
COM 4-232			X
COM 5-232			X
COM 6-232			X
PS/2 Mouse & Keyboard			X
Audio Connector			X
Audio 2.1 Channel			X
LPT 1			X
IRDA			X
USB 1/2 Ports	X		
USB 3/4 Ports	X		
USB 5/6 Ports			X
USB 7/8 Ports			X
USB 2.0 1/2 Ports	X		
USB 2.0 3/4 Ports	X		
USB 2.0 5/6 Ports			X
USB 2.0 7/8 Ports			X
DIO Connector			X

PC/104			X
PC/104-Plus			X
PCI-104			X
CD-In Connector			X
TFT TTL LCD			X
TFT LVDS LCD			X
CRT	X		
TV-out / S Terminal			X
TV-out / AV Terminal			X
DVI			
HDMI			X
Component Video : Y/ Pb /Pr			X
Touch Screen – 4 Wire			X
Touch Screen – 5 Wire			X
Touch Screen – 8 Wire			X
DIMM Slots	X		
Watchdog Software Control	X		
CPU FAN Connector			X
System FAN Connector			X
Front Panel (CN34)	<b>Result</b>		
	<b>Pass</b>	<b>Fail</b>	<b>N/A</b>
Power On Button	X		
IDE LED	X		
External Buzzer			X
On Board Buzzer			X
Power LED			X
Reset Switch			X
Keyboard Lock			X
Jumpers Function	<b>Result</b>		
	<b>Pass</b>	<b>Fail</b>	<b>N/A</b>
Clear CMOS			X
Power Connector & Function	<b>Result</b>		
	<b>Pass</b>	<b>Fail</b>	<b>N/A</b>
DC Adapter	X		
ATX Power Connector			X
AT Power Connector			X
LAN Connector & Function	<b>Result</b>		
	<b>Pass</b>	<b>Fail</b>	<b>N/A</b>
LAN Link / Speed LED	LAN1	X	
	LAN2	X	
LAN Active LED	LAN1	X	
	LAN2	X	
LAN 10/100 Ethernet		X	
LAN 1G Ethernet		X	

PCI Connector & Function	Result		
	Pass	Fail	N/A
Mini PCI Slots			X
PCI Slots			X
PCI Express			X
Mini PCI Express card			X
Express card			X

## 2. Power Connector Test

Test Method	Result		
	Pass	Fail	N/A
AC Power Connector- Power On/Off for 10 times in DOS	X		
ATX Connector - Power On/Off for 10 times in DOS			X
AT Connector - Power On/Off for 10 times in DOS			X

## 3. Timer Accuracy Test

System Clock & RTC Clock Test				
Test Method	Margin for error	Result		
		Pass	Fail	N/A
RTC Clock in Power On Mode	±3 second during 24 hours	X		
RTC Clock in Power Off Mode	±3 second during 24 hours	X		
Watchdog Timer Test		Result		
		Pass	Fail	N/A
Time-out Interval	10 sec	X		
	60 sec	X		
	120 sec	X		

## 4. Network HUB / LAN Connection Test

Location		LED Type				Result		
						Pass	Fail	N/A
LAN1 LED		Link / Speed LED				X		
		Active LED				X		
LAN2 LED		Link / Speed LED				X		
		Active LED				X		
Location	Speed	HUB Type	Cable Length	HUB Speed	Onboard LAN Speed	Result		
						Pass	Fail	N/A
Onboard LAN1	10/100/1000 Mbps	D-Link DGS-1008T	100M	1GBps	1000	X		
		Accton DeskTop-3005	100M	100 MBps	100	X		
		SVEC FD916H (10 Mbps HUB)	100M	10 MBps	10	X		
Onboard LAN2	10/100/1000 Mbps	D-Link DGS-1008T	100M	1GBps	1000	X		
		Accton DeskTop-3005	100M	100 MBps	100	X		
		SVEC FD916H (10 Mbps HUB)	100M	10 MBps	10	X		

## 5. Hardware Compatibility

CPU Compatible Test							
CPU Type	FSB	Prime95 Version	Result				
			Pass	Fail	N/A		
Intel Atom N270 1.6GHz	533 MHz	V.259	X				
Memory Compatibility Test							
Memory Brand	Memory Chipset	Frequency	Size	MemTest86 Version	Result		
					Pass	Fail	N/A
A-DATA DDR2	A-DATA AD29608A8A-3EG	667	1GB	V4.10	X		
Audio Basic Function Test					Result		
					Pass	Fail	N/A
System Sound							X
CD_In							X
CD_In Sound Recorder							X
Play Sound Recorder							X
Line Out							X
Line In							X
Line In Sound Record							X
MIC Speaker			Condenser				X
MIC Sound Recorder			Condenser				X
Audio 5.1 Channel with S/P DIF Function Test					Result		
					Pass	Fail	N/A
2-channel mode for stereo speaker output							X
4-channel mode for 4 speaker output							X
6-channel mode for 5.1 speaker output							X
8-channel mode for 7.1 speaker output							X
S/P DIF function Test			Input				X
			Output				X
On Board TV Function Test					Result		
					Pass	Fail	N/A
NTSC	AV Terminal						X
PAL							X
NTSC	S Terminal						X
PAL							X
On Board LCD Function Test							



TFT LCD	Type	Voltage	Result		
			Pass	Fail	N/A
LVDS	AUO G065VN01 V.0 / 6.5" / 640x480 / 18bit (4:3)	3.3V			X
	AUO G065VN01 V.0 / 6.5" / 640x480 / 24bit (4:3)	3.3V			X
	Data Image 7" / 800*480 / 18bit (16:9)	3.3V			X
	AU G084SN05 V.3 / 8.4" / 800*600 / 18bit (4:3)	3.3V			X
	AU B104SN02 V.0 / 10.4" / 800*600 / 18bit (4:3)	3.3V			X
	AUO G084SN05 v7 / 8.4" / 800*600 / 24bit (4:3)	3.3V			X
	AU G150XG01 V.0 / 15" / 1024*768 / 18bit (4:3)	3.3V			X
	AU M150XN07 V.2 / 15" / 1024x768 / 24bit (4:3)	5V			X
	Toshiba /12.1"/1280 x 768 x 18bit (16:9)	5V			X
	AU M170EG01 V.D/ 17"/ 1280*1024 / 48bit (4:3)	5V			X
	AU M170XW01 V.1 / 17" / 1280x768 / 24bit (16:9)	5V			X
	AUO T260XW02 / 26" / 1366x768 / 24bit	5V			X
	AU M201UN02 V.5 / 20.1" / 1600x1200x48bit	5V			X
	AUO T370HW01 / 37" / 1920x1080 / 48bit	12V			X
	AUO M190PW01 V0 / 19"/1440X900/48 bit	5V			X

#### PCI Slot Function (PCI Adapter Card) Test

Model	Type	Result		
		Pass	Fail	N/A
CHANTECH NVIDIA GeForce4 MX440-8X	VGA Card			X
Creative Sound BLASTER Live5.1	Sound Card			X
Takram DC-395U V1.02	SCSI Card			X
ADAPTEC Ultra160 SCSI ASC-29160	SCSI Card			X
I-VIEW CP-1400AS (with Age STD-477FAI CCD)	Capture Card			X
Intel GD82559 10/100 Mbps Fast Ethernet Adapter	LAN Card			X
3Com 3C905C-TXM ETHERLINK 10/100 PCI	LAN Card			X
D-Link DWL-520+ Wireless LAN	LAN Card			X
ADAPTEC 1420SA RoHS 4-Port SATA II RAID	RAID Card			X
LEMEL MD V1456VQH-P2 PCI MODEM Card	Modem Card			X
D-Link DU-520 USB 2.0	USB Hub Card			X
Tekram TR-822 Serial ATA 150 [SA-001] + SATA HDD Seagate ST3120026AS 120GB	SATA Card			X

#### ISA Slot Function Test

	Result		
	Pass	Fail	N/A
NE2000 Compatible LAN Card (RTL8019AS)			X
Adaptec AHA-1510/20/22B SCSI Card			X

#### PCI-Express Function Test

Model	Result		
	Pass	Fail	N/A
SUNIX SATA1414 VER 1.1 PCI-Express x1 SATA Card			X
SksKonnnect SK-9E21D 10/100/1000 Base-T Adapter PCI-Express x1 LAN Card			X

Adaptec AAR-1430SA SATAII HostRAID Controllers PCI-Express x4 RAID Card			X
ASUS EAX1600PRO/TD/256M/A (ATI Chipset) PCI-Express x16 VGA Card			X
WinFast PX6200 TC TDH PCI-Express x16 VGA Card			X
<b>HDD Compatibility Test</b>			
<b>Model</b>	<b>Result</b>		
	<b>Pass</b>	<b>Fail</b>	<b>N/A</b>
			X
			X
<b>IDE Cable Function test</b>			
<b>IDE Model</b>	<b>Result</b>		
	<b>Pass</b>	<b>Fail</b>	<b>N/A</b>
40 Pin Cable ATA100			X
44 Pin Cable ATA33			X
80 Pin Cable ATA100			X
<b>USB Function Test</b>			
<b>USB Basic Function Test</b>	<b>Result</b>		
	<b>Pass</b>	<b>Fail</b>	<b>N/A</b>
USB Controller	X		
USB 2.0 Controller	X		
USB Keyboard Support	X		
USB Mouse Support	X		
<b>USB 1.1 Compatible Test</b>	<b>Result</b>		
	<b>Pass</b>	<b>Fail</b>	<b>N/A</b>
USB 1.1 Compatible Test	X		
<b>USB 2.0 Compatible Test</b>	<b>Result</b>		
	<b>Pass</b>	<b>Fail</b>	<b>N/A</b>
USB 2.0 Compatible Test	X		
<b>USB 2.0 Function Test</b>	<b>Result</b>		
	<b>Pass</b>	<b>Fail</b>	<b>N/A</b>
Install Windows XP Professional from HighSpeed Device: USB2.0 DRW-1604P-D/WHT/G/ASUS	X		
<b>USB Device Full Loading Test</b>	<b>Result</b>		
	<b>Pass</b>	<b>Fail</b>	<b>N/A</b>
Model			
Mitsumi FLL3.5 D353GUE/FUE	X		
USB HDD 20GB	X		
USB Card Reader	X		
USB Mouse	X		
USB Flash drive Transcend 2GB	X		
<b>Floppy Disk Controller Function Test</b>	<b>Result</b>		
	<b>Pass</b>	<b>Fail</b>	<b>N/A</b>

Copy and compare file between C: and A / B:			X		
Change Floppy to None value			X		
Swap FDD			X		
<b>Peripheral Compatibility-Storage Device</b>					
Model	Interface	Result			
		Pass	Fail	N/A	
DOC				X	
Type-I CF	Fix / PIO Mode	X			
Type-I CF	Fix / UDMA Mode	X			
<b>Digital I/O Connector Test</b>		Result			
		Pass	Fail	N/A	
Input Address:				X	
Output Address:				X	
VCC: (5V) , Position : (CN)				X	
DIO-1 Function Test				X	
DIO-2 Function Test				X	
<b>Adapter Compatibility- Industry Control Card PC/104, PC/104+, PCI-104 Modules</b>					
Interface	Model	Type	Result		
			Pass	Fail	N/A
PC/104	AAEON PCM-5600	Modem Module			X
	AAEON PCM-3115B	PCMCIA Module			X
PC/104+	AAEON PCM-3430	SCSI Module			X
PCI-104	AAEON PCM-FA00	Mini-PCI Converter			X
	AAEON PCM-3794	SCSI Module			X
	AAEON PCM-3730	Intel 82559 LAN Module			X
PCI/104 Express	AAEON PER-123				X
<b>On-Board RAID Function Test</b>					
Model	Interface	Result			
		Pass	Fail	N/A	
Set SATA HDDs as RAID 0	SATA			X	
Set SATA HDDs as RAID 1	SATA			X	
Set SATA HDDs as RAID 10	SATA			X	
Set SATA HDDs as RAID 5	SATA			X	
<b>COM Function Test</b>		Result			
		Pass	Fail	N/A	
COM Port Burn In Test overnight		X			
<b>Disk On Module [DOM] Compatibility Test</b>					
Model	Interface	Result			
		Pass	Fail	N/A	
Transcend / TS512MDOM40V / 512MB	IDE 40 Pin			X	

Transcend / TS512MDOM44V / 512MB	IDE 44 Pin			X
<b>Mini PCI Card Compatibility Test</b>				
Model	Interface	Result		
		Pass	Fail	N/A
PCI 10/100 LAN Mini PCI Card (Model:PER-C10L)	LAN			X
GM-101 WLAN 11b/g 54Mbps Mini PCI Card (Model: VNT6655AM)	WLAN			X
<b>COM/LPT Ports &amp; RS-232/422/485 Function Test</b>		Result		
		Pass	Fail	N/A
RS-422 for COM2		X		
RS-485 for COM2		X		
COM1				X
COM2		X		
COM3				X
COM4				X
COM5				X
COM6				X
LPT1				X
LPT2				X
<b>Card Bus(PCMCIA) Compatibility Function Test</b>				
Model	Result			
	Pass	Fail	N/A	
Intel PRO/Wireless 2011B LAN PC Card (WPC2011BWW)			X	
PQI 16MB Compact Flash Adapter (64MB PQI CF Card inserting)			X	
Kingston datapack DP-PCM2 / 2GB (PC Card Typell HDD)			X	
PCi GW-NS54SG Cardbus Adapter Wireless LAN Type-II			X	

## 6. O.S. Compatibility Test

Installation Operation System Compatibility Test			Result		
			Pass	Fail	N/A
[ ] Linux-Red Hat 9.0 or [ X ] Fedora Core 10 -Kernel 2.6.27			X		
Windows Vista TM Ultimate x32 English Version			X		
Windows Vista TM Ultimate x64 Edition English Version					X
Windows XP Professional English Version V2002 Service Pack 3			X		
Windows XP Professional English Version /Standard x64 Edition					X
Windows 2000 Professional English Version V5.00.2195 Service Pack4					X
Windows 7 Ultimate English Version x32			X		
Utility and Driver Test					
OS	Drivers Version		Result		
			Pass	Fail	N/A
Linux-Fedora 10 Kernel- 2.6.27	Chipset Software	Default Driver	X		
	Graphics Media	Default Driver	X		
	LAN Driver	Default Driver	X		
	Audio Driver	Default Driver	X		
Windows Vista TM Ultimate x32 English Version	Chipset Software	Intel(R) Chipset Device Software - 9.0.0.1008	X		
	Graphics Media	Mobile Intel(R) 945GM Express Chipset - 15.8.3.1504	X		
	LAN Driver	Intel 82574L Gigabit Network	X		
	Audio Driver	Realtek AC97 Audio	X		
Windows Vista TM Ultimate x64 Edition English Version	Chipset Software				X
	Graphics Media				X
	LAN Driver				X
	Audio Driver				X
Windows XP Professional English Version V2002 Service Pack 3	Chipset Software	Intel(R) Chipset Device Software - 9.0.0.1008	X		
	Graphics Media	Mobile Intel(R) 945GME Express Chipset - 6.14.10.4926	X		
	LAN Driver	Intel 82574L Gigabit Network -10.3.49.0	X		
	Audio Driver	Realtek AC97 Audio 5.10.0.6280	X		
Windows XP Professional x64 Edition English Version Service Pack 2 V2002	Chipset Software				X
	Graphics Media				X
	LAN Driver				X
	Audio Driver				X
Windows 7 Ultimate English Version x32	Chipset Software	Intel(R) Chipset Device Software - 9.1.1.1019	X		

	<b>Graphics Media</b>	<b>Mobile Intel (R) 945GME Express Chipset - 15.12.75.4.1930</b>	<b>X</b>		
	<b>LAN Driver</b>	<b>Intel 82574L Gigabit Network</b>	<b>X</b>		
	<b>Audio Driver</b>	<b>Realtek AC97 Audio</b>	<b>X</b>		

## 7. BIOS Function Test

Test Item	Result		
	Pass	Fail	N/A
Memory Beep Test	X		
Standard CMOS Setup Test	X		
Boot Sequence Test	X		
<b>Power Management Test</b>			
APM Power Management Test			X
ACPI Power Management Test	X		
Power On Function Test	X		
Wake Up Event Test	X		
Power On after Power Failure Test	X		
CMOS Backup / Clear CMOS Test			X
Boot ROM Test (RPL/PXE)	X		
Supervisor / User Password Test	X		
CRT Function Test	X		
TV Standard Function Test			X
Init Display First Function Test	X		
On-Chip Serial ATA Function Test	X		
SATA Mode-IDE/RAID Function Test			X
<b>PC Health Status</b>			
Voltage Monitor Test	X		
FAN Speed Monitor Test			X
Temperature Monitor Test	X		
Swap Floppy Drive & Boot up Floppy Seek Function Test			X
USB Onboard Device Function Test	X		
COM Address / IRQ Test	X		
LPT Address / IRQ Test			X
BIOS AWDFLASH Program Test	X		

## 8. Performance Test

### Platform Information

CPU Board	EPIC-9457 A1.0-A
Carrier Board	N/A
BIOS	AEC-6620 BIOS Rev1.1 (05/21/2010)
Operating System	Windows XP SP3
CPU	Intel Atom N270 1.6GHz
Memory	Apacer PC2-5300 512MB
Compact Flash	Transcend CF 4GB
CRT	ViewSonic E70 17"
Chipset Software	Intel(R) 4 Series Chipset 9.0.0.1008 (5/01/2008)
Graphics Media	Mobile Intel 945 Express chipset Family 6.14.10.4926 (2/15/2008)
LAN Driver	Intel 82574L Gigabit Network 10.3.49.0 (8/5/2008)
Audio Driver	Realtek AC97 Audio 5.10.0.6280 (1/23/2008)
Power Supply or Adapter	AC-Adapter : EA1050A-120

### Test result:

Testing Software	Result	Unit
<b>PCMark2002</b>		
CPU	2649	
Memory	5910	
HDD	578	
<b>Final Reality V1.01—BenchMark Test</b>		
2D image	19.43	
3D	4.03	
Bus transfer	26.23	
Overall	11.98	Reality marks
<b>3Dmark2001</b>		
3DMark2001SE Build 330_Benchmark mode	2736	
Testing Software	Result	Unit
<b>PCMark05</b>		
PCMark	N/A	PCMarks
CPU	1494	
Memory	2370	
Graphics	N/A	
HDD	2054	



3Dmark2003 v360		
3Dmark Score	691	
CPU Score	243	