

Release No : 09E010026

Product Model	<b>EMB-9459T</b>
Description	<b>Intel 945GSE + ICH7M</b>
Test Configuration	<input checked="" type="checkbox"/> New product <input checked="" type="checkbox"/> PCB Board : EMB-9459T A1.0 <input checked="" type="checkbox"/> BIOS : EMB-9459T BIOS Rev. 1.0 (04/17/2009) <input checked="" type="checkbox"/> Carrier Board : N/A <input checked="" type="checkbox"/> Expansion Board : N/A <input checked="" type="checkbox"/> Riser Card : PER-R16P-A10 <input checked="" type="checkbox"/> Chipset : <input checked="" type="checkbox"/> CPU : Intel(R) Atom(TM) CPU N270 1.6GHz <input checked="" type="checkbox"/> North Bridge : Intel 945GSE <input checked="" type="checkbox"/> South Bridge : Intel NH82801GBM(ICH7M) <input checked="" type="checkbox"/> VGA Chipset : Intel 945GSE integrated <input checked="" type="checkbox"/> Audio Chipset : VIA HD VT 1708B <input checked="" type="checkbox"/> Ethernet Chipset : Realtek RLT8111C 10/100/1000 MHz <input checked="" type="checkbox"/> I/O Chipset : ITE 8712 <input checked="" type="checkbox"/> TV Chipset : Intel 945GSE integrated <input checked="" type="checkbox"/> Remark : QE NPDP P5 Report for EMB-9459T
<b>Test Result Summary</b>	
<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> Pass with Deviation  Comment: _____ _____	

*2009/06/30*

Issue date

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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 specification or no test equipment

**Platform Information:**

Item	Device Information
PCB Model / Version	EMB-9459T A1.0
Carrier Board	N/A
BIOS / Version	EMB-9459T BIOS Rev. 1.0 (04/17/2009)
CPU Type	Intel ATOM N270 1.6GHz
Memory Type	Kingston DDR2-667 512MB / (HYB18T512800BF3S)
SATA	Seagate ST3160815A 160GB
Primary IDE Master	N/A
Primary IDE Slave	N/A
CRT	ViewSonic E653
LCD	N/A
Compact Flash	N/A
Backplane	N/A
Riser Card	PER-R16P-A10
Expansion Board	N/A
Operating System	Fedora Core 8
	Windows XP Professional English Version Service Pack 3
	Windows Vista 32-bit
Power Supply	AT POWER: ZECK ZKS-300W

**Test Result for Certification****1. I/O Peripheral Function Test**

I/O Function	Result			Note
	Pass	Fail	N/A	
Floppy Connector / Driver A:			X	
Primary IDE Master	X			
Primary IDE Slave	X			

Secondary IDE Master			X	
Secondary IDE Slave			X	
Third IDE Master			X	
Third IDE 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 – Type I	X			
Compact Flash – Type II			X	
DOC (Disk On Chip)			X	
DOM (Disk On Module) – 40 Pin			X	Transcend / TS512MDOM40V / 512MB / IDE 40 Pin
DOM (Disk On Module) – 44 Pin	X			Transcend / TS512MDOM44V / 512MB / IDE 44 Pin
COM 1-232	X			
COM 2-232	X			
COM 3-232	X			
COM 4-232	X			
COM 5-232	X			
COM 6-232	X			
COM 2-422	X			
COM 2-485	X			
PS/2 Mouse & Keyboard (Internal)	X			
Audio Connector	X			
Audio 5.1 Channel	X			
S/P DIF	X			
LPT 1	X			
SIR / 115.2 Kbps			X	
IrDA	X			
USB 1/2 Ports	X			
USB 3/4 Ports	X			
USB 5/6 Ports	X			
USB 2.0 1/2 Ports	X			
USB 2.0 3/4 Ports	X			

USB 2.0 5/6 Ports	X			
DVI Function	X			
DIO Connector	X			
Card Bus			X	
PC/104			X	
PC/104-Plus			X	
PCI-104			X	
CD-In Connector			X	
TFT TTL LCD			X	
TFT LVDS LCD	X			
TV-out / S Terminal	X			
TV-out / AV Terminal	X			
Touch Screen – 8 Wire			X	
Touch Screen – 4/5 Wire			X	
DIMM Slots	X			
Watchdog IRQ n			X	
Watchdog Software Control	X			
FAN Connector	X			
FAN2 Connector			X	
Express card			X	
Audio 2 Watt Speaker Connector	X			
LCD Backlight Power Connector			X	
DC in Connector			X	
PCI Express Mini Card			X	
Power Button			X	
Battery Connector			X	
SDVO Connector	X			
LCD Inverter Connector	X			
Front Panel (CN20)	Result			Notes
	Pass	Fail	N/A	
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		Result			Notes
		Pass	Fail	N/A	
LCD Inverter Voltage selection		X			JP1
COM2 +12V/+5V/RING Selection		X			JP2
LCD Voltage selection		X			JP3
Clear CMOS		X			JP4
AT/ATX Power Mode Selection		X			JP6
Power Connector & Function		Result			Notes
		Pass	Fail	N/A	
Standard AT Power Connector				X	
Standard ATX Power Connector				X	
HDD Power Connector (12V/5V)		X			PWR1
12V Only Power Connector		X			PWR2
ATX PS_ON Connector		X			CN17
DC Adapter				X	
LAN Connector & Function		Result			Notes
		Pass	Fail	N/A	
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			Notes
		Pass	Fail	N/A	
Mini PCI Slot		X			
PCI Slot		X			Test for riser card PER-R16P A1.0
PCI Express x4		X			Test for riser card PER-R16P A1.0
Express card				X	

## 2. Power Consumption Test (19V)

Test Environment	ATX Power: N/A		AT Power: ZECK ZKS-300W		Note
	Model				
CPU			Intel(R) Atom(TM) CPU N270 1.6GHz		
HDD			Seagate ST380815AS 80GB SATA 2 HDD		
RAM			Kingston DDR2-667 512MB / (HYB18T512800BF3S)		
OS Environment			Windows XP Professional English Version Service Pack 3		
Normal Mode (+5V)		A	N/A	A	
Suspend Mode (+5V)		A	N/A	A	
5VSB in Power Off Mode (just for ATX)		A	-----	A	
5VSB in Power On Mode (just for ATX)		A	-----	A	
Normal Mode (+12V)		A	1.19	A	
Suspend Mode (+12V)		A	0.22	A	
Normal Mode (+3.3V) (just for ATX)		A	-----	A	
Suspend Mode (+3.3V) (just for ATX)		A	-----	A	
Normal Mode (-12V)		A	N/A	A	
Suspend Mode (-12V)		A	N/A	A	
Normal Mode (-5V)		A	N/A	A	
Suspend Mode (-5V)		A	N/A	A	

### 3. Timer Accuracy Test

System Clock & RTC Clock Test				
Test Method	Margin for error	Result		
		Pass	Fail	N/A
System Clock in Power On Mode	±3 second during 24 hours	X		
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	5 sec	X		
	10 sec	X		
	60 sec	X		
	255 sec	X		

### 4. Network HUB / LAN Connection Test

Location		LED Type				Result		
						Pass	Fail	N/A
LAN 1 LED		Active LED				X		
		Link LED				X		
LAN 2 LED		Active LED				X		
		Link LED				X		
LAN 1	Speed	HUB Type	Cable Length	HUB Speed	Onboard LAN Speed	Result		
						Pass	Fail	N/A
		D-Link DGS-1008T	100M	1GBps	1G	X		
		Accton DeskTop-3005	100M	100 MBps	100	X		
		SVEC FD916H (10 Mbps HUB)	100M	10 MBps	10	X		
LAN 2	Speed	HUB Type	Cable Length	HUB Speed	Onboard LAN Speed	Result		
						Pass	Fail	N/A
		D-Link DGS-1008T	100M	1GBps	1G	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		
Onboard Intel Atom Z530 Processor 1.6GHz	533	V25.90	X				
Memory Compatibility Test							
Memory Brand	Memory Chipset	Frequency	Size	MemTest86 Version	Result		
					Pass	Fail	N/A
Kingston	512MB Memory	533	512MB	V2.01	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				Dynamic	X		
				Condenser	X		
MIC Sound Recorder				Dynamic	X		
				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		
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	Data Image 7" / 800*480 / 18bit (16:9)	3.3V	X		
	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
	AU B104SN02 / 10.4" / 800*600 / 18bit (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)	3.3V			X
	AU M170EG01 / 17" / 1280*1024 / 48bit (4:3)	5V			X
	Toshiba LTD12EX1S / 1280*768 / 18bit	3.3V	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	26V			X
TTL	Toshiba LTM10C209A / 10.4" / 640*480 / 18bit (4:3)	5V			X
	NEC NL8060AC31-12 / 12.1" / 800*600 / 18bit (4:3)	3.3/5V			X
	Sharp LQ121S1DG11 / 12.1" / 800*600 / 18bit (4:3)	3.3V			X
	LG LM151X2-C2TH / 15.1" / 1024x768 / 18bit (4:3)	3.3V			X
	Fujitsu FLC38XGC6V-06 / 15" / 1024*768 / 36bit (4:3)	5V			X
PCI Slot Function (PCI Adapter Card) Test					
Model		Type	Result		
			Pass	Fail	N/A
CHAINTECH NVIDIA GeForce4 MX440-8X		VGA Card	X		
SC3000 CMI8738/C3DX		Sound Card	X		
Takram DC-395U V1.02		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		
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
ISA Slot Function Test			Result		
			Pass	Fail	N/A
Creative CT4170 Sound Blaster Sound Card					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
ASUS EAX1600PRO/TD/256M/A (ATI Chipset) PCI-Express x16 VGA Card			X
WinFast PX6200 TC TDH PCI-Express x16 VGA Card			X
<b>Mini PCI-Express Function Test</b>			
Model	Result		
	Pass	Fail	N/A
Mini PCI-Express Test Card			X
<b>SATA HD Compatibility Test</b>			
Model	Result		
	Pass	Fail	N/A
Seagate ST3160815A 160GB	X		
WD 160G SATA H.D WD1600AAJS	X		
<b>CD/DVD-ROM Compatibility Test (USB DVD-ROM)</b>			
Model	Result		
	Pass	Fail	N/A
ASUS DRW-1604P-D/WHT/G/ASUS	X		
LITEON DX-20A4PU USB DVD-ROM	X		
SONY USB2.0 DVD-R/W DRX-830UL	X		
<b>IDE Cable Function test</b>			
IDE Model	Result		
	Pass	Fail	N/A
40 Pin Cable ATA66			X
44 Pin Cable ATA33	X		
80 Pin Cable ATA100			X
<b>USB Function Test</b>			
USB Basic Function Test	Result		
	Pass	Fail	N/A
USB Controller	X		
USB 2.0 Controller	X		
USB Keyboard Support	X		
USB Mouse Support	X		
USB 1.1 Compatible Test	Result		
	Pass	Fail	N/A
USB 1.1 Compatible Test	X		
USB 2.0 Compatible Test	Result		
	Pass	Fail	N/A
USB 2.0 Compatible Test	X		
USB 2.0 Function Test		Result	

		Pass	Fail	N/A	
LITEON DX-20A4PU USB-DVD ROM		X			
Kingston USB Device		X			
<b>USB Device Full Loading Test</b>		<b>Result</b>			
Model		Pass	Fail	N/A	
Mitsumi FLL3.5 D353GUE/FUE				X	
USB HDD 20GB				X	
USB Card Reader				X	
USB Mouse				X	
USB Thumb drive- Kingston 8Gb				X	
<b>Floppy Disk Controller Function Test</b>		<b>Result</b>			
		Pass	Fail	N/A	
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	
FUJITSU MCB3064SS	SCSI			X	
IOMega ZIP 100 parallel port	Parallel			X	
IOMega ZIP100MB Internal ATAPI Drive	IDE			X	
DOC				X	
Type-I CF	Fix / PIO Mode			X	
Type-I CF	Fix / UDMA Mode			X	
<b>Digital I/O Connector Test</b>		<b>Result</b>			
		Pass	Fail	N/A	
Input Address:		X			
Output Address:		X			
VCC: (5V)		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
<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>		<b>Result</b>				
		<b>Pass</b>	<b>Fail</b>	<b>N/A</b>		
COM Port Burn In Test overnight		X				
<b>Disk On Module [DOM] Compatibility Test</b>						
<b>Model</b>		<b>Interface</b>		<b>Result</b>		
				<b>Pass</b>	<b>Fail</b>	<b>N/A</b>
Transcend / TS512MDOM40V / 512MB		IDE 40 Pin				X
Transcend / TS512MDOM44V / 512MB		IDE 44 Pin		X		
<b>Mini PCI Card Compatibility Test</b>						
<b>Model (Use PCI-104 transform board: MBC-1TM Rev.A1.0)</b>		<b>Interface</b>		<b>Result</b>		
				<b>Pass</b>	<b>Fail</b>	<b>N/A</b>
PER-C10L Mini PCI LAN Card(Intel 82551QM)		LAN				X
GM-101 WLAN 11b/g 54Mbps Mini PCI Card (Model: VNT6655AM)		LAN				X
<b>COM/LPT Ports &amp; RS-232/422/485 Function Test</b>		<b>Result</b>				
		<b>Pass</b>	<b>Fail</b>	<b>N/A</b>		
RS-422 for COM2		X				
RS-485 for COM2		X				
COM1		X				
COM2		X				
COM3		X				
COM4		X				
COM5		X				
COM6		X				
LPT1		X				
<b>Card Bus(PCMCIA) Compatibility Function Test</b>						
<b>Model</b>		<b>Result</b>				
		<b>Pass</b>	<b>Fail</b>	<b>N/A</b>		
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 TypeII 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
Windows XP Professional English Version Service Pack 3	X		
Windows Vista 32-bit	X		
Fedora Core 8	X		

## 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 (PXE)	X		
Supervisor / User Password Test	X		
Init Display First Function Test	X		
On-Chip Serial ATA Function Test	X		
SATA Mode-IDE/RAID Function Test			X
LPT Address / IRQ Test	X		
BIOS AWDFLASH Program Test	X		

## 8. Performance Test

### Platform Information

PCB Model	EMB-9459T A1.0
Carrier Board	N/A
BIOS	EMB-9459T BIOS Rev. 1.0 (04/17/2009)
Operating System	Windows XP Professional Service Pack 3
CPU	Intel ATOM N270 1.6GHz
Memory	Kingston DDR2-667 512MB / (HYB18T512800BF3S)
SATA HDD	Seagate ST3160815A 160GB
Primary IDE Master	N/A
Primary IDE Slave	N/A
CRT	ViewSonic E653
LVDS	N/A
Compact Flash	N/A
Backplane	N/A
Riser Card	N/A
Chipset Software	Intel(R) Chipset Device Software 9.0.0.1008
Graphics Media	Mobile Intel(R) 945 Express Chipset Family 6.14.10.4926(2/28/2008)
LAN Driver	Realtek RTL8168C(P)/8111C(P) PCI-E Gigabit Ethernet NIC 5.698.701.2008(7/1/2008)
Audio Driver	VIA HD VT 1708B – 6.0.1.1550 – 10/22/2008
Power Supply	AT POWER: ZECK ZKS-300W

### Test result:

Final Reality V1.01—BenchMark Test		
2D Image	18.66	
3D	3.95	
Bus transfer	22.09	
Overall	11.09	Reality marks
3Dmark2001SE Pro		
3DMark2001SE Build 330_Benchmark mode	2741	
3Dmark2003 v340		
3Dmark Score	689	
CPU Score	243	
PCMark2002		
CPU	2658	
Memory	6052	
HDD	1518	

<b>PCMark05</b>		
<b>PCMark</b>	<b>1586</b>	
<b>CPU</b>	<b>1480</b>	
<b>Memory</b>	<b>2399</b>	
<b>Graphics</b>	<b>448</b>	
<b>HDD</b>	<b>5159</b>	