

Release No : 09E010025

Product Model	<b>NanoCom-U15</b>
Description	<b>Intel Menlow COM Express CPU Module</b>
Test Configuration	<input checked="" type="checkbox"/> New product <input checked="" type="checkbox"/> CPU Board : Nano COM-U15 Rev. A1.0 <input checked="" type="checkbox"/> BIOS : Nano COM-U15 BIOS Rev.1.0(04/29/2009) <input checked="" type="checkbox"/> Carrier Board : ECB-951D Rev. A 1.0 <input checked="" type="checkbox"/> Expansion Board : N/A <input checked="" type="checkbox"/> Chipset : <input checked="" type="checkbox"/> CPU : Onboard Intel Atom Z530 1.6GHzProcessor <input checked="" type="checkbox"/> North Bridge : Intel SCH US15W <input checked="" type="checkbox"/> South Bridge : Intel SCH US15W <input checked="" type="checkbox"/> VGA Chipset : Intel SCH US15W integrated <input checked="" type="checkbox"/> Audio Chipset : Realtek High definition audio interface <input checked="" type="checkbox"/> Ethernet Chipset : Intel 82574L Gbe Ethernet <input checked="" type="checkbox"/> I/O Chipset : Intel Poulsbo <input checked="" type="checkbox"/> TV Chipset : N/A <input checked="" type="checkbox"/> SDVO : Intel Poulsbo integrated <input checked="" type="checkbox"/> Remark : QE NPDP P5 Report for Nano COM-U15
<b>Test Result Summary</b>	
<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> Pass with Deviation Comment: _____ _____	

2009/06/10

Issue date

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Manager

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Test Engineer

## Summary Table of contents :

Summary Table of contents	2
Platform Information	3
1. I/O Peripheral Function Test	3
2. Power Connector Test	6
3. Timer Accuracy Test	6
4. Network HUB / LAN Connection Test	8
5. Hardware compatibility	9
6. O.S. Compatibility Test	14
7. BIOS Function Test	16
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 specification or no test equipment

**Platform Information:**

Item	Device Information
PCB Model	Nano COM-U15 Rev. A1.0
BIOS / Version	Nano COM-U15 BIOS Rev.1.0(04/29/2009)
CPU Type	Onboard Intel Atom Z530 Processor 1.6GHz
Memory Type	Onboard 512MB Memory
SATA HDD	Seagate 3.5' SATA H.D ST380815AS 80G
Primary IDE Master	N/A
Primary IDE Slave	N/A
CRT	N/A
LCD	N/A
DVI	LG L1753T
Compact Flash	N/A
Operating System	Windows XP Professional English Version Service Pack 3
Power Supply	DC Adapter :FSP065-AAC – Output 19V

**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
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
DOM (Disk On Module) – 44 Pin			X
COM 1-232	X		
COM 2-232	X		
COM 2-Ring /+5V /+12V	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 (Internal)			X
PS/2 Mouse & Keyboard (External)	X		
Audio Connector	X		
Audio 5.1 Channel / S/P DIF			X
LPT 1			X
LPT 2			X
IRDA			X
USB 1/2 Ports	X		
USB 3/4 Ports	X		
USB 2.0 1/2 Ports	X		
USB 2.0 3/4 Ports	X		
DVI Function (SDVO to DVI)	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		
TV-out / S Terminal			X
TV-out / AV Terminal			X
Touch Screen – 8 Wire			X
Touch Screen – 5 Wire	X		
DIMM Slots	X		
Watchdog IRQ n			X
Watchdog Software Control	X		
CPU FAN Connector			X
System FAN Connector			X
Speaker Connector	X		
LCD Backlight Power Connector			X
DC in Connector	X		
PCI Express Mini Card	X		

Power Button	X		
Battery Connector	X		
Front Panel	<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		
Battery LED	X		
Reset Switch	X		
Keyboard Lock			X
Jumpers Function	<b>Result</b>		
	<b>Pass</b>	<b>Fail</b>	<b>N/A</b>
BIOS write protection Selection and boot Selection	X		
Backlight enable level Selection and LVDS Power Selection			X
COM1 +12V/+5V/RING Selection			X
COM2 +12V/+5V/RING Selection	X		
Auto Power button Selection and power on selection			X
Power source selection			X
FAN Power Selection			X
CMOS Clear Selection	X		
LCD Brightness and speaker level Selection			X
Power Connector & Function	<b>Result</b>		
	<b>Pass</b>	<b>Fail</b>	<b>N/A</b>
DC Adapter	X		
ATX Power Connector			X
ATX Power_12V Connector			X
AT Power Connector			X
Big 4P Power Connector			X
LAN Connector & Function	<b>Result</b>		
	<b>Pass</b>	<b>Fail</b>	<b>N/A</b>
LAN Speed LED	LAN1	X	
	LAN2		X
	LAN3		X
LAN Active LED	LAN1	X	
	LAN2		X

	LAN3			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 *1 (Carrier Board Reserve)				X
Mini PCI Express Card		X		

## 2. Power Consumption Test (19V)

Test Environment	Adapter	Adapter + Battery	Note
Model			
CPU	Onboard Intel Atom Z530 1.6GHzProcessor	Onboard Intel Atom Z530 1.6GHzProcessor	
HDD	Onboard 2GB SSD	Onboard 2GB SSD	
RAM	Onboard 512MB Memory	Onboard 512MB Memory	
OS Environment	Windows XP Professional English Version Service Pack 3	Windows XP Professional English Version Service Pack 3	
Normal Mode	0.59 A	0.60 A	
Suspend Mode	0.20 A	0.21 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		
Location	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
Onboard	512MB Memory	533	512MB	V2.11	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
<b>PCI Slot Function (PCI Adapter Card) Test</b>					
	<b>Model</b>	<b>Type</b>	<b>Result</b>		
			<b>Pass</b>	<b>Fail</b>	<b>N/A</b>
	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
<b>ISA Slot Function Test</b>			<b>Result</b>		
			<b>Pass</b>	<b>Fail</b>	<b>N/A</b>
Creative CT4170 Sound Blaster Sound Card					X
Adaptec AHA-1510/20/22B SCSI Card					X
<b>PCI-Express Function Test</b>					
	<b>Model</b>		<b>Result</b>		
			<b>Pass</b>	<b>Fail</b>	<b>N/A</b>
	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
FUJITSU 2.5' SATA H.D – MHY2080BH 80G	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>			
Model	Result		
	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			
Floppy Disk Controller Function Test	<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	<b>Result</b>			
		<b>Pass</b>	<b>Fail</b>	<b>N/A</b>	
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	
Digital I/O Connector Test	<b>Result</b>				
	<b>Pass</b>	<b>Fail</b>	<b>N/A</b>		
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	<b>Result</b>		
			<b>Pass</b>	<b>Fail</b>	<b>N/A</b>
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	<b>Result</b>			
		<b>Pass</b>	<b>Fail</b>	<b>N/A</b>	
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	
COM Function Test	<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>				
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 (Use PCI-104 transform board: MBC-1TM Rev.A1.0)	Interface	Result		
		Pass	Fail	N/A
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>		Result		
		Pass	Fail	N/A
RS-422 for COM2		X		
RS-485 for COM2		X		
COM1		X		
COM2		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 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		
Ubuntu 8.10	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	Nano COM-U15 Rev. A1.0
Carrier Board	ECB-951D Rev. A1.0
BIOS	Nano COM-U15 BIOS Rev.1.0(04/29/2009)
Operating System	Windows XP Professional Service Pack 3
CPU	Onboard Intel Atom Z530 Processor 1.6GHz

Memory	Onboard 512MB Memory
SATA HDD	Seagate 3.5' SATA H.D ST380815AS 80G
Primary IDE Master	N/A
Primary IDE Slave	N/A
CRT	DVI LG L1753T
LVDS	N/A
Compact Flash	N/A
Backplane	N/A
Riser Card	N/A
Chipset Software	Intel Chipset Device software -- 9.0.0.1008 – 5/1/2008
Graphics Media	Intel(R) Graphics Media Accelerator 500 – 6 .14.10.1079 -- 10/22/2008
LAN Driver	Intel 82574L Gigabit Network Connection – 10.3.49.0 -- 8/5/2008
Audio Driver	Realtek High Definition Audio -- 5.10.0.5772 – 1/6/2009
Power Supply	DC Adapter :FSP065-AAC – Output 19V

**Test result:**

Final Reality V1.01—BenchMark Test		
2D Image	10.07	
3D	2.40	
Bus transfer	12.11	
Overall	6.16	Reality marks
3Dmark2001SE Pro		
3DMark2001SE Build 330_Benchmark mode	665	
3Dmark2003 v340		
3Dmark Score	424	
PCMark2002		
CPU	1321	
Memory	N/A	
HDD	N/A	
PCMark05		
PCMark	N/A	
CPU	740	
Memory	1470	
Graphics	N/A/	
HDD	4172	