

Power Consumption Test Report

Test Item: Power Consumption Test		File No: SDT-003896
Product Name: IPPC1202-RE V-A1	S/N : S02IPPC12--A10100P	Quantity: 1
Date: 2015/7/2	Temperature: 23.5°C	Humidity: 52.9%RH
Place: iBASE Lab	Inspector: Chris Chiou	Leader: Tony Tsai

Configuration:

Item	Description	S/N
M/B	IB806-D25S V-1.0	ZD01IB806---10030P
CPU	Intel® Atom™ Processor D2550 (1M Cache, 1.86 GHz) 10W	C018ATOMG18615100P
PCH	Intel® CG82NM10 PCH 2.1W	C01382NM100024000P
Heatsink	IPPC-1202-RE V-A1	H051IPPC1202RE00AP
DIMM	Transcend / SO-DIMM DDR3L 2G/1600 1.35V [TS7W9SDSQ-I]	C0373900200081520P
HDD	TOSHIBA / 2.5" 500G SATAIII 5400RPM 7mm[MQ01ABF050]	A002SLSAG50010120P
SSD	Intel / 2.5" SATA3 180G MLC 530 SERIES [SSDSC2BW180A401]	A002SSDSA180G1000P
Board-I	IP930 V-B1	ZD05IP930---0B110P
Board-II	ID910 V-B1	ZD06ID910---0B110P
LCD Panel	IVO / 12.1" TFT-LCD [M121GNX2 R1]	A003LCDM121GNX000P
Touch Panel	ELO / 12.1" 5-WIRE RESISTIVE ZERO-BEZEL [E803003]	A003LCDPANEL07600P
Controller	PENMOUNT / [6202B-CW5]	A008CTRL6202B0000P
Case	IPPC-1202-RE V-A1	Y02IPPC12020A1100P
PSU	FSP / ADAPTER 84W 12V W/LOCK [FSP084-DIBAN2]	A005PS084W0070200P

Test Equipment:

NO	Manufacturer	Description
1.	TES	TES-1367 Humidity / Temperature Meter
2.	PROVA	CM-07 Current Meter
3.	iBASE	ASB200-883-6COM V-A1
4.	TEKTRONIX	TDS2014C 100MHz 2GS/s
5.	CHROMA	DC Electronic Load 6314A(63103A)
6.	CHROMA	DIGITAL POWER METER 66202
7.	CHROMA	MEASUREMENT TEST FIXTUREA A662003
8.	CHROMA	TEST FIXTURE A800042

Connect Devices:

NO	I/O	Device			
1.	USB1 Connector	USB Keyboard / Genius [GK-090017]			
2.	USB2 Connector	USB Mouse / Microsoft [MSK-1113(B)]			
3.	USB3 Connector	DC Electronic Load 63103A Loading 5V / 0.5A			
4.	USB4 Connector	DC Electronic Load 63103A Loading 5V / 0.5A			
5.	VGA Connector	VGA Panel / CHIMEI [948A]			
6.	COM1 Connector	BurnInTest Loopback Device			
7.	LAN1~2 Connector	LAN HUB / EDIMAX [ES-3208P]			
8.	DC-In 12V Input Connector	FSP / ADAPTER 84W 12V W/LOCK [FSP084-DIBAN2]			
9.	PCI Slot	Voltage	3.3V	5V	12V
		Loading	3.8A	2.5A	0.5A

Software Configuration:

OS	Windows 7 Ultimate(32bit)
Application	BurnInTest V-7.1 Pro CPU-Z V-1.71.0 TAT V-3.8.6

Test Procedure:**Test Mode 1.**

1. After Windows 7 boot up, run BurnInTest V-7.1 Pro and the following items be full loaded.
 - CPU 100% full loading
 - RAM 100% full loading
 - HDD 100% full loading
 - Sound 100% full loading
 - Video 100% full loading
 - Network 100% full loading
 - 2D Graphics 100% full loading
 - 3D Graphics 100% full loading
 - Com Port 100% full loading
2. Calculate the power consumption for system.
3. Condition: Please refer "BurnInTest 7.1 Configuration Photos".
4. Test 1hr.

Test Mode 2.

1. After Windows 7 boot up, run BurnInTest V-7.1 Pro and the following items be full loaded.
 - RAM 100% full loading
 - HDD 100% full loading
 - Sound 100% full loading
 - Video 100% full loading
 - Network 100% full loading
 - 2D Graphics 100% full loading
 - 3D Graphics 100% full loading
 - Com Port 100% full loading
2. Calculate the power consumption for system.
3. Test 1 hr.

Test Mode 3.

1. After Windows 7 boot up, run BurnInTest V-7.1 Pro and the following items be full loaded.
 - CPU 100% full loading
2. Calculate the power consumption for system.
3. Test 1 hr.

Test Mode 4.

1. After Windows 7 boot up, run TAT V-3.8.6 and the following items be full loaded.
CPU-0 100% full loading
CPU-1 100% full loading
CPU-2 100% full loading
CPU-3 100% full loading
2. Calculate the power consumption for system.
3. Condition: Please refer "TAT V-3.8.6 Configuration Photos".
4. Test 1 hr.

Test Result:

NO	+12V (A)	Power (W)	Test Result
Test Mode 1	5.20	62.40	Pass
Test Mode 2	5.30	63.60	Pass
Test Mode 3	5.11	61.32	Pass
Test Mode 4	5.31	63.72	Pass

ErP Test:

Items	Measurements(Watt)	ErP Standard(Watt)	Result
Power Supply (Only Connect AC)	0.01W	0.5W	Pass
System (Power off)*1	0.17W	0.5W	Pass

Note1: (BIOS Setting Wake On Lan: Disabled)

Energy Star 5.2 Test :
Table 7: Maximum TEC Allowances for Desktop and Integrated Desktop Computers

Product Category	TEC _{BASE} (kWh)	TEC _{MEMORY} (kWh) Where: $m = \text{System Memory (GB)}$	TEC _{GRAPHICS} (kWh)	TEC _{STORAGE} (kWh) (Applies once if system has more than one Additional Internal Storage element.)
A	148.0	1.0 (per GB > 2.0)	35.0 (GPU Frame Buffer Width ≤ 128-bit)	25.0
			50.0 (GPU Frame Buffer Width > 128-bit)	
B	175.0	1.0 (per GB > 2.0)	35.0 (GPU Frame Buffer Width ≤ 128-bit)	25.0
			50.0 (GPU Frame Buffer Width > 128-bit)	
C	209.0	1.0 (per GB > 2.0)	50.0 (GPU Frame Buffer Width > 128-bit)	25.0
D	234.0	1.0 (per GB > 4.0)	50.0 (GPU Frame Buffer Width > 128-bit)	25.0

Table 5: Mode Weightings for Desktop and Integrated Desktop Computers

Mode Weighting	Conventional	Full Network Connectivity			
		Base Capability	Remote Wake	Service Discovery/Name Services	Full Proxying
T_{off}	55%	50%	47%	43%	40%
T_{sleep}	5%	14%	20%	25%	30%
T_{idle}	40%	36%	33%	32%	30%

Equation 1: TEC Calculation (E_{TEC}) for Desktop, Integrated Desktop, and Notebook Computers

$$E_{TEC} = (8760 / 1000) * \{ (P_{OFF} * T_{OFF}) + (P_{SLEEP} * T_{SLEEP}) + (P_{IDLE} * T_{IDLE}) \}$$

Where:

- P_{OFF} = Measured power consumption in Off Mode (W)
- P_{SLEEP} = Measured power consumption in Sleep Mode (W)
- P_{IDLE} = Measured power consumption in Idle Mode (W)
- T_{OFF} , T_{SLEEP} , and T_{IDLE} are mode weightings as specified in Table 5 (for Desktops and Integrated Desktops) or Table 6 (for Notebooks).

Where all P_x are power values in watts, all T_x are time Values in % of year, and the TEC E_{TEC} is in units of kWh, and represents annual energy consumption based on mode weightings in Table 5.

Model	OFF	S3 Sleep	Idle
Power (W)	0.17	0.75	17.80
Meter Photo			

System	Desktop Computer
Category	B ($\leq 175W$)
Operation	$E_{TEC} = (8760/1000) * (0.17 * 0.55 + 0.75 * 0.05 + 17.80 * 0.4)$ $= 8.76 * (0.09 + 0.03 + 7.12)$ $= 8.76 * 7.24 = 63.42W \leq 175W$

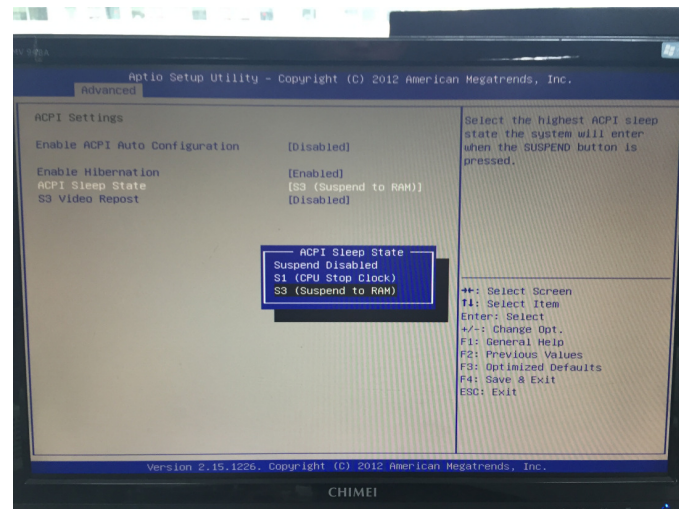
Result: [Pass](#)

WoL Function Test:

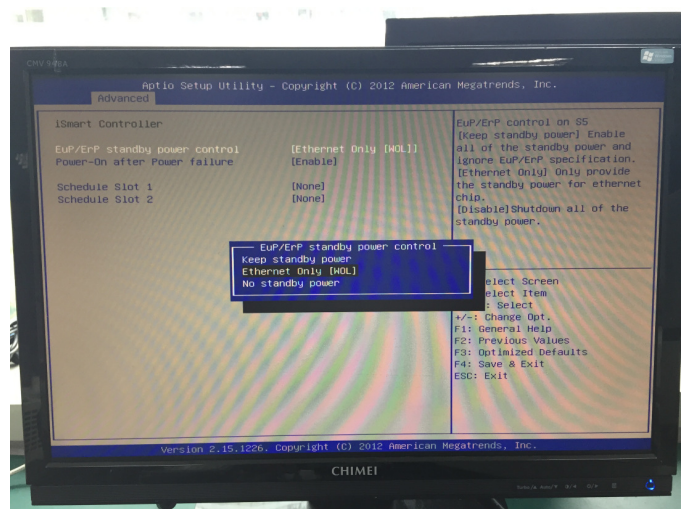
	LAN1 (Realtek RTL8111E-VL-CG)	LAN2 (Realtek RTL8111E-VL-CG)
S3 Mode(WoL)	No Function	No Function
Off Mode(WoL)	No Function	OK

Testing Photo:

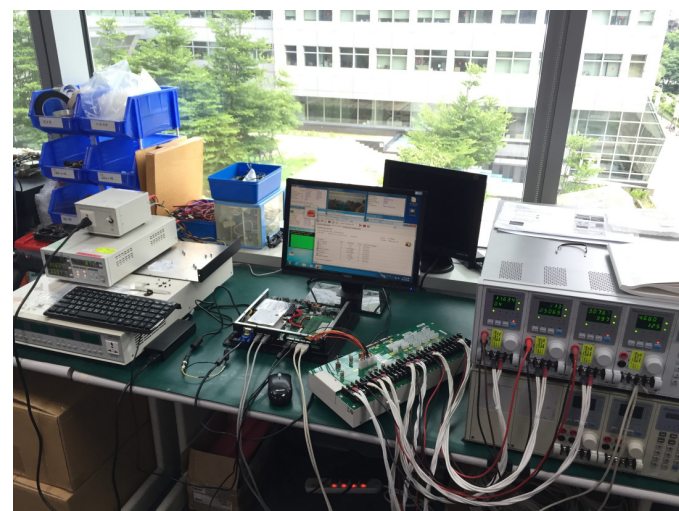
BIOS Setting (S3 Mode)



BIOS Setting (WoL)



Full Loading



Idle Mode



Connect Devices



CPU Information (CPU-Z)

CPU-Z Ver. 1.71.0.x32

Processor

- Name: Intel Atom D2550
- Code Name: Cedarview
- Package: Socket FCMB A3
- Technology: 32 nm
- Core Voltage: 1.208 V
- Specification: Intel(R) Atom(TM) CPU D2550 @ 1.86GHz
- Family: 6, Model: 6, Stepping: 1
- Ext. Family: 6, Ext. Model: 36, Revision: B0/B2/B3
- Instructions: MMX, SSE, SSE2, SSE3, SSSE3, EM64T

Clocks (Core #0)

- Core Speed: 1866.73 MHz
- Multiplier: x 14.0 (6 - 14)
- Bus Speed: 133.34 MHz
- Rated FSB: 533.35 MHz

Cache

- L1 Data: 2 x 24 KBytes 6-way
- L1 Inst: 2 x 32 KBytes 8-way
- Level 2: 2 x 512 KBytes 8-way
- Level 3: [Empty]

Selection: Processor #1 | Cores: 2 | Threads: 4

CPU Information (Windows Task Manager)

Windows Task Manager

Performance

- CPU Usage: 27%
- Physical Memory Usage: 792 MB
- Physical Memory (MB): Total 2035, Cached 362, Available 1243, Free 981
- System: Handles 12367, Threads 578, Processes 46, Up Time 0:00:04:13, Commit (MB) 783 / 4071
- Kernel Memory (MB): Paged 86, Nonpaged 39

Processes: 46 | CPU Usage: 27% | Physical Memory: 38%

BurnInTest V-7.1 Configuration

BurnInTest V7.1 Pro

System summary

- Windows 7 Ultimate Edition Service Pack 1 build 7601 (32-bit)
- 1 x Intel(R) Atom(TM) CPU D2550 @ 1.86GHz
- 2.0GB RAM
- Intel(R) Graphics Media Accelerator 3600 Series
- 466GB HDD

General

- System Name: TEST-PC
- Motherboard Manufacturer: INTEL Corporation
- Motherboard Model: Tiger Hill
- BIOS Manufacturer: American Megatrends Inc.
- BIOS Version: 4.6.5
- BIOS Release Date: 11/05/2012

CPU

- CPU manufacturer: GenuineIntel
- CPU Type: Intel(R) Atom(TM) CPU D2550 @ 1.86GHz
- Codename: Cedarview
- CPUID: Family 6, Model 36, Stepping 1
- Lithography: 32nm
- Physical CPUs: 1
- Cores per CPU: 2

BurnInTest V-7.1 Configuration

Test selection and duty cycles

Auto Stop after: 0 Minutes or 0 Cycles (0 means run forever)

- CPU: 100%
- 2D Graphics: 100%
- 3D Graphics: 100%
- Disk(s): 100%
- Sound: 100%
- Network: 100%
- USB: 50%
- Video: 100%
- RAM: 100%
- Com Port(s): 100%
- Printer: 50%
- Optical Drive(s): 50%
- Tape: 50%
- Parallel Port: 50%
- Plug-in: 50%

Select the tests to perform and the load of each test (1 = Minimum load, 100 = Maximum load)

Buttons: OK, All On, All Off, Reset Defaults, Cancel, Help

TAT V-3.8.6 Configuration

Intel Thermal Analysis Tool

Processor Details

- Processor: Genuine Intel(R)
- Maximum Frequency: 1866 Mhz
- CPUID: 30661h
- ACPI Thermal Zone Temp: 40.93

CPU Monitor

CPU	Digital Temp (°C)	Frequency (MHz)
CPU : 0	35	1866
CPU : 1	35	1867

CPU Control

- CPU 0: Workload Level 100%, On demand throttle 0%
- CPU 1: Workload Level 100%, On demand throttle 0%
- CPU 2: Workload Level 100%, On demand throttle 0%
- CPU 3: Workload Level 100%, On demand throttle 0%
- Gfx Control: Gfx Workload level 100%

Log: 10:31:2011: 11:15:21: Processor 2: DIGITAL TMP1 3268 }
 10:31:2011: 11:15:21: Processor 3: DIGITAL TMP1 3268 }
 10:31:2011: 11:15:26: Processor 0: DIGITAL TMP1 3488 }
 10:31:2011: 11:15:26: Processor 2: DIGITAL TMP1 3188 }
 10:31:2011: 11:15:26: Processor 3: DIGITAL TMP1 3188 }
 10:31:2011: 11:15:29: Processor 0: DIGITAL TMP1 3588 }

Buttons: Show All Cores, Start Logging, Output Results, Stop Monitor

Power Current Waveform (Test Mode 4):

