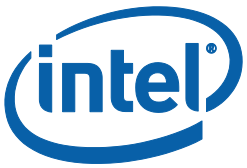

Thin Mini-ITX Based All-In-One PC Compliance Requirements

August 2012

Revision 1.1

Contents

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Revision History

Revision Number	Description	Revision Date
1.1	• Initial release	August 2012
1.0	• Initial draft release	July 2012

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1 Introduction

1.1 Purpose / Scope

This document describes the minimum requirements for consideration and approval to have components listed on the Channel AIO Compatibility Matrix. Compliance with these requirements will ensure compatibility among the listed building block components to aid in the successful integration of Channel All-In-One systems. The desired business model for All-In-One system integrators is based on building block components that are readily available from established distribution channels. For this business model to work, the available components must be compatible.

This compliance document is targeted towards All-In-One systems based on the Thin Mini-ITX motherboard standard as defined in the Thin Mini-ITX Based PC System Design Guide Revision 1.1.

1.2 All-In-One PCs

The following table outlines some typical features that define a standards based All-In-One PC:

Table 1-1. Basic Features in Thin Mini-ITX Based AIO PCs

Feature	Comments
Compact and stylish chassis	An appealing industrial design is important.
Thin, low power flat panel	LED backlight, goal < 15mm thickness, LVDS
Thin Mini-ITX Motherboard	Motherboard compliant to the Thin Mini-ITX spec standards in the *Mini-ITX Addendum Version 2.0 To the microATX Motherboard Interface Specification Version 1.2*
Audio speakers	Integrated in to the AIO chassis
ODD	Thin profile 5.25” ODD, SATA
3.5” or 2.5” SATA, SSD or HDD	Enclosure may support one or two HDD or SSD
Wireless LAN	Mini-PCIe half card
Web Cam	Integrated in to the chassis in a location appropriate to the design.
Walkup I/O ports	Options that may be designed in to the chassis include USB, microphone, headphone ports, and SD card reader. No specific configurations are defined in this specification

1.3 Channel AIO Compatibility Matrix

To be listed on Intel's AIO Compatibility Matrix as "Compliant", AIO chassis and Thin Mini ITX based motherboards must meet all the requirements outlined in this document. Listed components must be either verified by Intel or by supplier verified reports provided to Intel.

Chassis must be verified to be compatible with an applicable Intel motherboard and at least two 3rd party motherboards in order to ensure adequate interoperability and to provide integrators with proper flexibility in component selection.

1.4 Reference Documents

Table 1-2. Reference Documents

Document	Document No./Location
Thin Mini-ITX Based PC System Design Guide Revision 1.1.	www.intel.com/go/aio
Channel AIO (Thin Mini-ITX Form Factor) – Compatibility Matrix	www.intel.com/go/aio
Mini-ITX Addendum Version 2.0 To the microATX Motherboard Interface Specification Version 1.2	www.formfactors.org
ATX Specification Version 2.2	www.formfactors.org
Thermally Advantaged Small Chassis (TASC) Design Guide	www.formfactors.org
4-Wire Pulse Width Modulation (PWM) Controlled Fans Specification	www.formfactors.org
ECMA-74 - Measurement of Airborne Noise emitted by Information Technology and Telecommunications Equipment	www.formfactors.org
2nd Generation Intel® Core™ Processor and LGA1155 Socket Thermal Mechanical Specifications and Design Guidelines (TMSDG)	Document# 324644
VESA eDP	www.displayport.org www.vesa.org
VESA standard mounting	www.vesa.org/Standards/summary/2006_2.htm
Standard Panel Working Group, Rev 3.5	www.spwg.org/specifications.htm
PC form factors web site	www.formfactors.org/developer/specs

Document	Document No./Location
Wi-Fi Multi-Band Antenna Integration for Intel® Processor-based Desktops and All-in-One Systems	Document# 491058

Document numbers and locations are subject to revision and may change.

2 AIO Motherboard Requirements

2.1 Summary

This section defines the minimum features and configuration details of Thin Mini-ITX motherboards required for compliance with Intel approved AIO components. The following requirements represent only the minimum features to ensure proper interoperability and do not intend to limit additional features that may enhance functionality and end user experience.

The requirements below are derived from the Thin Mini-ITX Based PC System Design Guide Revision 1.1.

2.2 Flat Panel Display

2.2.1 Flat Panel Display Connector

An internal LVDS 40-pin connector for flat panel display and backlight connectivity is required.

Refer to the "Thin Mini-ITX Based PC System Design Guide Revision 1.1" Section 2.2.1 for details.

2.2.2 Flat Panel Display Brightness

An 8-pin front flat panel display brightness connector is required.

Refer to the "Thin Mini-ITX Based PC System Design Guide Revision 1.1" Section 2.2.2 for details.

2.3 Audio

2.3.1 Front Panel Audio

A 2x5 front panel audio header is required.

Refer to the "Thin Mini-ITX Based PC System Design Guide Revision 1.1" Section 2.3.1 for details.

2.3.2 Internal Stereo Speaker

A 1x4 internal stereo speaker header is required.

Refer to the "Thin Mini-ITX Based PC System Design Guide Revision 1.1" Section 2.3.2 for details.

2.4 SATA

2.4.1 SATA Data

A minimum of two SATA data ports is required to support internal HDD and ODD.

Refer to the "Thin Mini-ITX Based PC System Design Guide Revision 1.1" Section 2.4 for more details.

2.4.2 SATA Power

A standard 15 pin SATA power header is required.

The motherboard must support at least 0.5A from +12V rail, 1.25A from +5V rail, and 0.25A from +3.3V rail, per SATA data port (i.e. twice as much for a 2-port board).

2.5 Internal USB

A total of five internal USB connections are required in the following configuration:

One dual 2x5 USB header keyed at pin 9
One dual 2x5 USB header keyed at pins 9 and 10
One single 1x5 USB header keyed at pin 5

Refer to the "Thin Mini-ITX Based PC System Design Guide Revision 1.1" Section 2.5 for more details.

2.6 Front Panel Header

A standard front panel 2x5 header keyed at pin 10 is required.

Refer to the "Thin Mini-ITX Based PC System Design Guide Revision 1.1" Section 2.6 for more details.

2.7 DC Power Input

A 19V DC external power jack is required.

Refer to the "Thin Mini-ITX Based PC System Design Guide Revision 1.1" Section 3.2 for more details.

2.8 Fan Headers

One standard 4-wire CPU fan header (colored white) is required.

Refer to the "Thin Mini-ITX Based PC System Design Guide Revision 1.1" Section 2.8.1 for more details.

One standard 4-wire system fan header (colored other than white) is required.

Refer to the "Thin Mini-ITX Based PC System Design Guide Revision 1.1" Section 2.8.2 for more details.

2.9 Motherboard Connection Labeling

The motherboard must be supplied with a connector/header description and location diagram. This can be a paper insert or an adhesive label.

Connector identification must comply with the standard terminology shown in Table 2-1. Any chassis interconnects not listed below must also be identified.

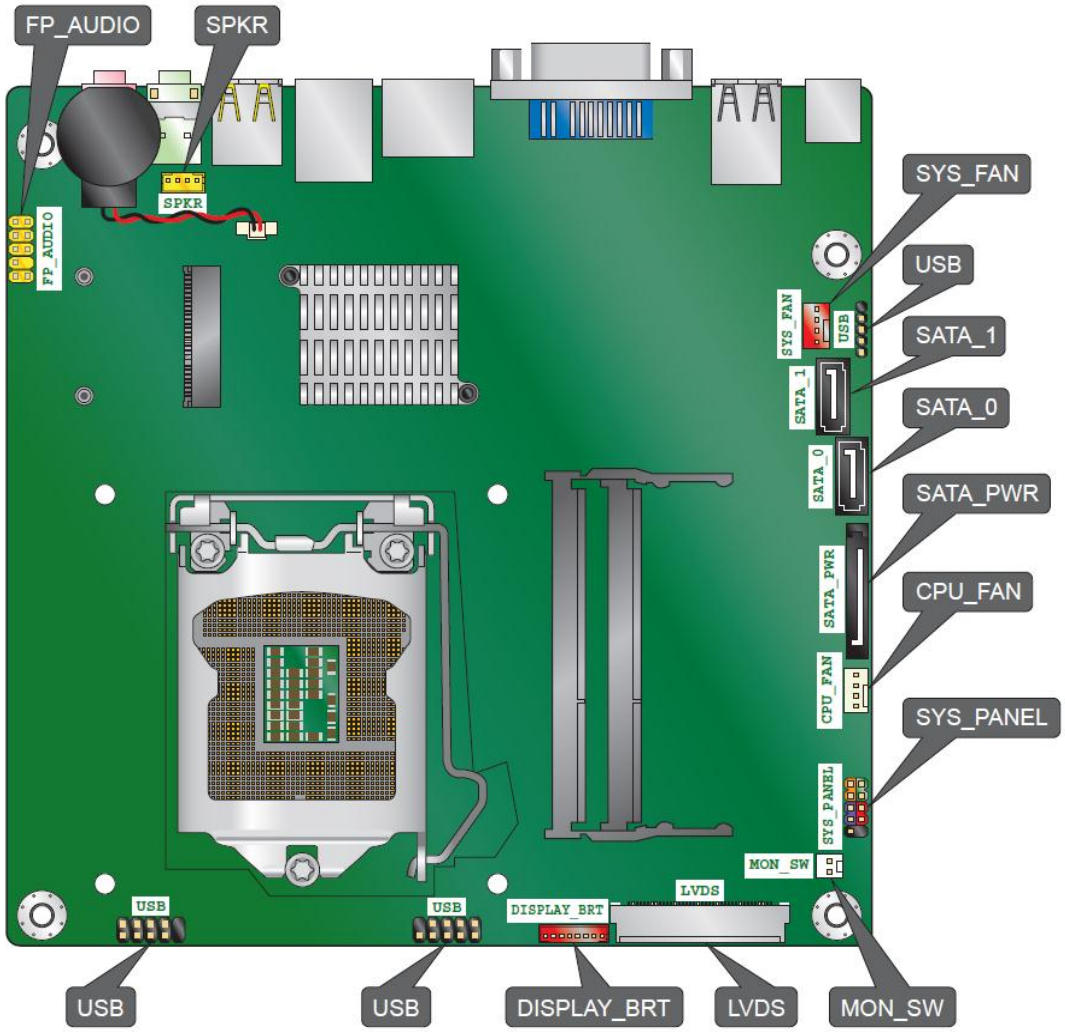
Table 2-1. Connection Identification

Connection	MB Diagram/Silkscreen Name	Description
Chassis Speakers	SPKR	JWT* 4-pin (or compatible)
CPU fan	CPU_FAN	Standard 4-pin fan header - white color
Display Brightness	DISPLAY_BRT	JWT 8-pin (or compatible)
Headphone/Mic	FP_AUDIO	2x5/2.54mm, pin8 keyed
LVDS Display	LVDS	ACES* or Starconn* 40-pin (or compatible)
Monitor Switch	MON_SW	1x2/2.54mm
Power/LED	SYS_PANEL	2x5/2.54mm, pin10 keyed
SATA Data	SATA_0, SATA_1	
SATA Power	SATA_PWR	Standard SATA 15-pin male
System fan	SYS_FAN	Standard 4-pin fan header - non-white color
USB – Dual	USB	2x5/2.54mm, pin9 keyed
USB – Single	USB	1x5/2.54mm, pin5 keyed
USB – Single 2x	USB	2x5/2.54mm, pins 9&10 keyed

2.9.1 Motherboard Connection Diagram Template

The connector/header description and location diagram must follow the provided template below. All chassis interface connections must be identified.

Figure 2-1. Motherboard Connection Diagram Template



2.10 Motherboard Mechanical Requirements

The motherboard must comply with all mechanical requirements listed in the "Thin Mini-ITX Based PC System Design Guide Revision 1.1" Section 5 covering the following:

Motherboard mounting hole locations – (Section 5.1)
CPU location – (Section 5.1)
Thermal solution mounting hole locations and keep-out zones – (Section 5.1)
Connector location zones – (Section 5.2)

2.11 I/O Shield

The motherboard must include an I/O shield compatible with the I/O area of the MB and with the Thin Mini-ITX spec standards in the "Mini-ITX Addendum Version 2.0 to the microATX Motherboard Interface Specification Version 1.2"

2.12 Adapter Cables

If any motherboard connectors are not compliant by design with the requirements stated in this document, the motherboard supplier may provide converter cables to the compliant interface. Conversion cables must be designed as small as possible to minimize the impact to available space inside the system.

3 AIO Chassis Requirements

3.1 Summary

This section defines the minimum features and configuration details of All-In-One chassis required for compliance with Intel approved Thin Mini-ITX motherboards. The following requirements represent only the minimum features to ensure proper interoperability and do not intend to limit additional features that may enhance functionality and end user experience.

The requirements below are derived from the Thin Mini-ITX Based PC System Design Guide Revision 1.1.

3.2 Chassis Mechanical Requirements

The chassis must comply with all mechanical requirements listed in the "Thin Mini-ITX Based PC System Design Guide Revision 1.1" Section 5 covering the following:

Motherboard mounting hole locations – (Section 5.1)
Thermal solution mounting hole locations – (Section 5.4)

3.3 Chassis Cabling

3.3.1 Included Cables

The chassis must include all cabling required for the applicable chassis mounted devices.

A chassis that requires a specific cable routing or a custom cable routing or length must either include the cable pre-routed in the chassis or be included as part of the chassis integration kit by the chassis supplier. The chassis must include the SATA standard data and 15 pin female (at the MB end) power cables for the applicable number of devices enabled by the chassis design. The SATA power cable must be designed to provide power to all such devices from a single motherboard header connection.

All cables included with the chassis that interface to the motherboard must be long enough when secured to any intended cable management features to reach the applicable connector zone as identified in the "Thin Mini-ITX Based PC System Design Guide Revision 1.1" Section 5.2.

All devices included with the chassis must be identified on the interface cable. Table 3-1 references the most common interface types. Device types not included in Table 3-1 must also be labeled accordingly.

3.3.2 Cable Labeling

All cables included with the chassis that interface to the motherboard must be labeled per the table below:

Table 3-1. Chassis Cable Identification

Connection	Cable Label Text	Description
Chassis Speakers	SPKR (xW, 4 OHM)	JWT 4-pin (or compatible); clearly label speaker power rating (W) and 4 OHM impedance.
CPU fan	CPU_FAN	Standard 4-pin fan connector - white color
Display Brightness	DISPLAY_BRT	JWT 8-pin (or compatible)
Headphone/Mic	FP_AUDIO	2x5/2.54mm, pin8 keyed
LVDS Display	LVDS	ACES or Starconn 40-pin (or compatible)
Monitor Switch	MON_SW	1x2/2.54mm
Power/LED	SYS_PANEL	2x5/2.54mm, pin10 keyed
System fan	SYS_FAN	Standard 4-pin fan connector - non-white color
USB	As applicable to identify device: CAMERA_USB FP_USB TOUCH_USB MIC_USB	2x5/2.54mm, pin9 keyed 1x5/2.54mm, pin5 keyed

3.4 Flat Panel Display Connector

The flat panel display must have standard LVDS 40-pin connectivity.

Refer to the "Thin Mini-ITX Based PC System Design Guide Revision 1.1" Section 2.2.1 for details.

3.5 Wi-Fi

The chassis must include at least two wireless antennas with cables long enough to reach anywhere on the top or bottom side of the motherboard.

Refer to "Wi-Fi Multi-Band Antenna Integration for Intel® Processor-based Desktops and All-in-One Systems" for additional information.

3.6 Speakers

If provided, chassis speakers must be 3W, 4 Ohm stereo.

3.7 Camera

If provided, an integrated chassis camera must be USB interface.

3.8 Microphone

If provided, an integrated chassis microphone must be USB interface.

3.9 Power Button / LED

The chassis must include a power button and power indicator LED

3.10 Thermal Performance

Chassis must also have passed Intel's standard AIO thermal testing. Refer to the "Thin Mini-ITX Based PC System Design Guide Revision 1.1" Section 7.3 for details.