intel CORE i7 inside

GENERAL

- ▸ 3U VPX per VITA 46
- ▸ VPX-REDI per VITA 48
- ▸ 1" Pitch, conduction cooled
- ▸ Intel 3rd generation Core i7 (Ivy Bridge) CPU
- ▸ Panther Point HM76 PCH Chipset
- ▸ Up to 16 GB DDR3 + ECC SDRAM
- ▸ Up to 64 GB User FLASH
- ▸ 8 MB SPI FLASH
- ▸ Pin Compatible with TSBCi7-300X SBC

FIXED REAR I/O

- ▸ 16x PCI Express 2.0 Lanes on P1
- ▸ 1x Hi Resolution VGA and DVI-D
- ▸ 2x IEEE-1588 GigE Ports
- ▸ 4x USB 2.0
- ▸ 1x SATA II
- ▸ 1x I²C Bus

CONFIGURABLE I/O

- ▸ Up to 2x RS-232/422/485
- ▸ Up to 1x RS-232/422/485 with handshake
- ▸ Up to 2x Audio In/Out
- ▸ Up to 16x GPIO with 4x interrupts
- ▸ Up to 2x MIL-STD-1553 RT/BC/BM

OPTIONAL FRONT I/O

- ▸ 1x X1 PCIe 2.0
- ▸ 1x SATA I
- ▸ 1x USB 2.0

CPU OPTIONS

- ▸ Core i7-3612QE
- ▸ Core i7-3615QE

POWER

- ▸ 50 Watts (typical)

ENVIRONMENTAL

- ▸ Conduction Cooled
- ▸ Operating Temperature:-40° to +85°C
- ▸ Storage Temperature:-55° to +105°C
- ▸ Humidity: 0 to 95% RH non-condensing
- ▸ Optional Conformal Coating
- ▸ Shock: 40g peak
- ▸ Sawtooth @ 11 mSec
- ▸ Vibration (Random): 1g2/Hz, 15Hz to 2KHz
- ▸ Vibration (Sine): 10g Peak, 15Hz to 2KHz

TSBCi7-340X

Single Board Computer (SBC)

OVERVIEW

The TSBCi7-340X Single Board Computer (SBC) employs the Intel® 3rd Generation Core™ i7 Quad Core processors, as well as the highly integrated Panther Point HM76 Platform Controller Hub (PCH) Chipset to provide high performance in rugged applications. The superior performance of the TSBCi7-340X is due in large part to the CPU's use of Intel® Turbo Boost and Intel hyper-threading technologies. These technologies maximize performance to match processor workload and enable the efficient use of high speed mass storage and buffering, due to the advanced design of the HM76 PCH chipset.

The TSBCi7-340X computer features a full compliment of PCIe buses that are configurable as X4, X8 and X16 interfaces. All common serial interfaces are supported, including USB, RS-232, RS-422 and RS-485. An optional on-board MIL-STD-1553 interface is available for military applications. The standard, high resolution video graphics interface enables VGA, HDMI and DVI-D displays.

The TSBCi7-340X is an ideal upgrade processor for C4ISR, mission computer, display processor, payload controller, sensor management, EW and SIGINT applications, and high speed data storage units. Drivers and board support packages are available for Linux® and Windows®. Please contact Themis for information on using Real Time Operating Systems such as VxWorks®, Integrity® and LynxOS®.

This board is available with other card pitches and ruggedization grade options that include commercial air cooled to full MIL conduction cooled. Consult Themis for further information.
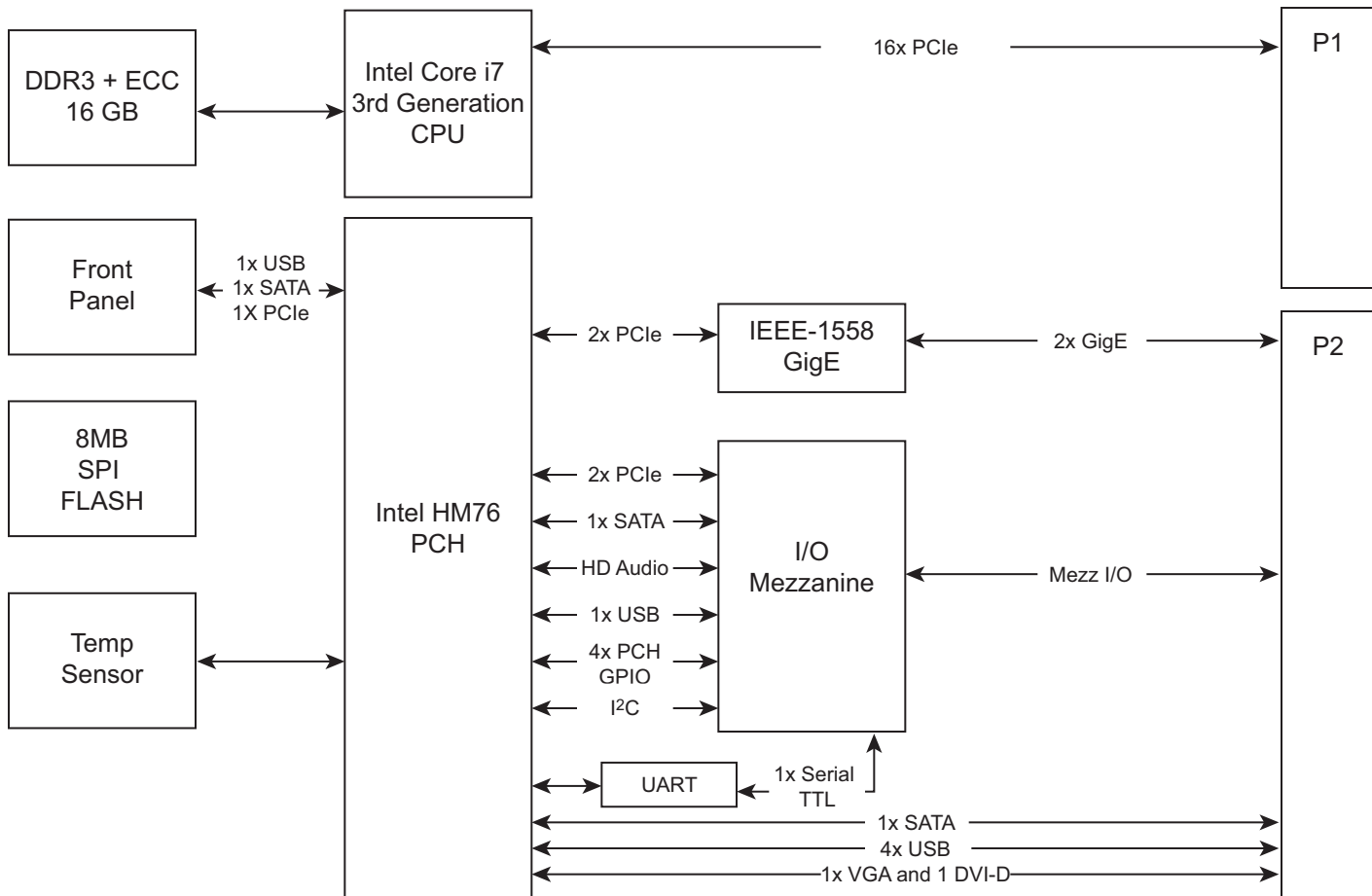
Figure 1: TSBCi7-340X Single Board Computer Block Diagram

I/O MEZZANINE BOARD OPTIONS

The I/O Mezzanine boards have several pre-defined optional configurations that provide various combinations of the following components:

▸ User FLASH
▸ RS-232/422/485 serial interfaces with full handshaking
▸ RS-232/422/485 serial interfaces without handshaking
▸ High definition audio IN and OUT
▸ GPIO with PCH interrupts
▸ GPIO generated onboard I/O mezzanine via the I^{2}C bus
▸ MIL-STD 1553 data, address, and parity

On the I/O mezzanine board is a personality module that shuffles the mezzanine I/O among the existing 19 available I/O pins on VPX connector J2. Themis has defined several standard personality module configurations.

Consult Themis factory for other personality module requirements. If custom I/O is required on the SBC, the I/O mezzanine board enables I/O to be added without redesigning the entire SBC. Consult Themis factory with the specific I/O requirements.
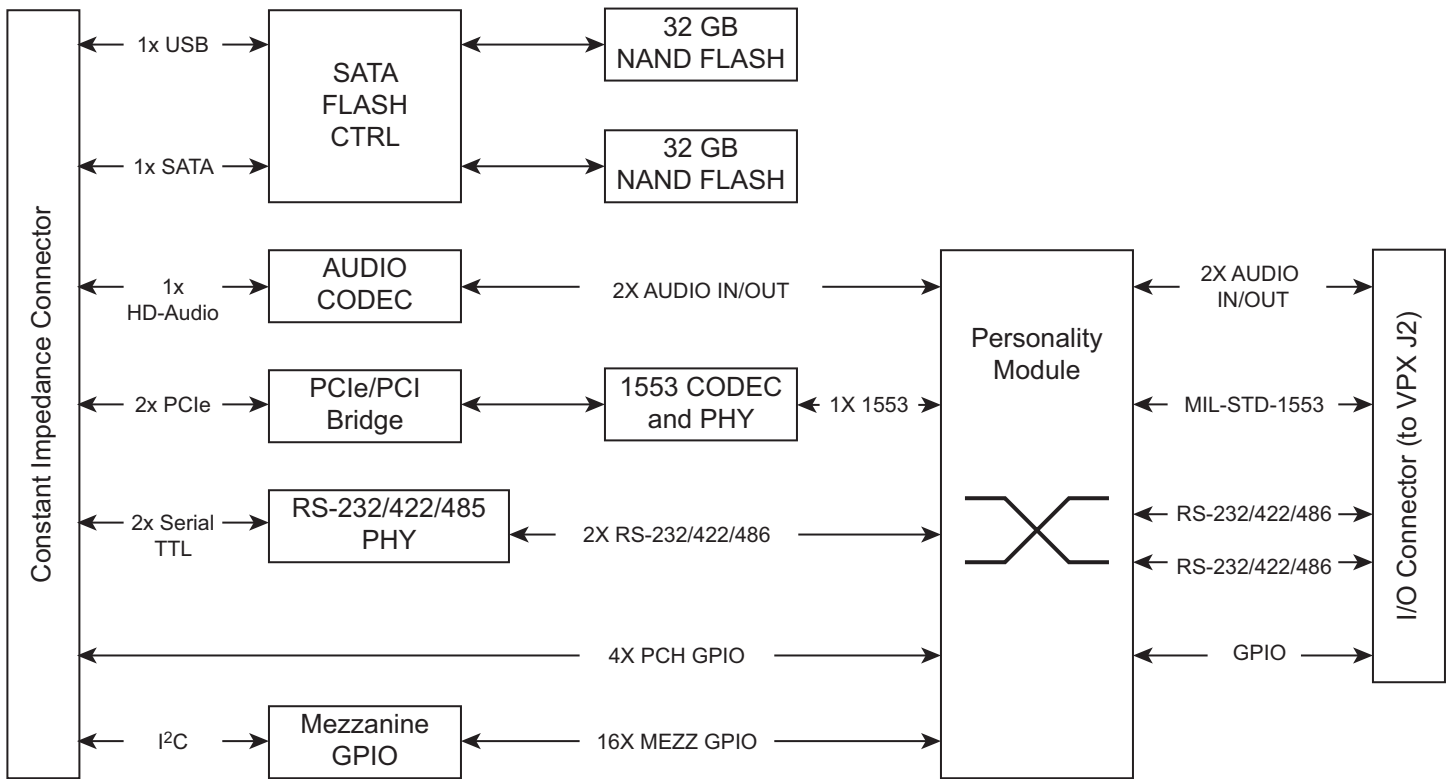
Figure 2: TSBCi7-340X I/O Mezzanine Board Block Diagram

TSBCI7-340X PRE-CONFIGURED PERSONALITY MODULE OPTIONS

PM CONFIGURATION A

▶ 1553 primary and secondary data buses, transformer coupled
▶ 1553 primary and secondary data buses, direct coupled
▶ RS-232 serial interface, three wire
▶ Audio line inputs, left and right
▶ Audio line outputs, left and right
▶ 2x discrete I/O with interrupts

PM CONFIGURATION B

▶ 1553 primary and secondary data buses, transformer
▶ coupled
▶ 1553 primary and secondary data buses, direct coupled
▶ Audio line inputs, left and right
▶ Audio line outputs, left and right
▶ 4x discrete I/O with interrupts

PM CONFIGURATION C

▶ 2x RS-232 serial interface, full function with handshaking
▶ 1x discrete I/O with interrupts
▶ 2x discrete I/O

PM CONFIGURATION D

▶ 2x RS-422/485 serial interface, full function with clocks and handshaking
▶ 1x discrete I/O with interrupts
▶ 2x discrete I/O

Consult Themis factory for other personality module configurations.

COMPLIANCE SPECIFICATIONS

The TSBCi7-340X Single Board Computer is designed to meet CE Emissions specification EN 55022, CE Immunity specification EN 50082-2 and FCC 47 CFR, Part 15, Class A when tested in a shielded enclosure.

THEMIS SBC SOLUTIONS

Themis single board computers are designed to provide the highest levels of configuration flexibility, performance and reliability. Themis engineers use their expertise in the design of embedded systems solutions to reduce the risk, and costs, of failure caused by demanding environmental conditions that include extreme temperature or vibration. From rugged to unique processor module/heat sink designs, Themis provides the high level of system integrity that demanding applications require. Themis computers provide increased resiliency to all environmental extremes - including shock, vibration, and temperatures, that cause many other embedded systems to fail.

THEMIS VALUE

Themis provides systems manufacturers and end-users with the most modern, best of breed computing resources available. Package and performance scale from small form factor embedded servers to bladed servers. We listen, understand, and work closely with our customers to optimize computing solutions that are easy to integrate, inexpensive to own and operate, and that achieve the right balance between standard commercial technology, rugged environments, and optimize space, weight, and performance.

THEMIS

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