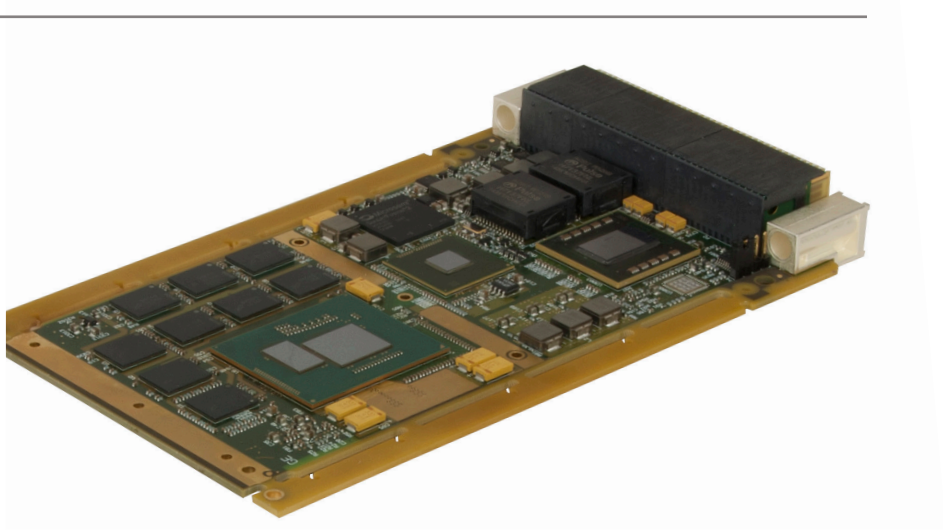


SBC347A

5th Generation Intel® Core™ i7 Based Rugged VPX Single Board Computer

The SBC347A Rugged Single Board Computer (SBC) from Abaco Systems features the high performance, highly integrated 5th Generation Core i7 processor platform from Intel.

The 5th Generation Core i7 offers integrated graphics and memory controller plus quad core processing up to 2.7 GHz all in one device. Coupled with the Mobile Intel QM87 Express Chipset, this provides an unmatched level of I/O bandwidth for both on-board and off-board functions.

Features of the 5th Generation Core i7

- Graphics support for DX11.1, OpenCL 1.2, OpenGL 3.2
- 5 to 15% CPU performance boost over 4th generation
- Intel TurboBoost Technology
- Intel AVX 2.0 extensions and AES-NI instructions
- Hardware-assisted security features
- Hyper-Threading Technology – two threads per core

The SBC347A is designed to offer maximum PCIe® bandwidth to the backplane with a total of 14 (x8, x4, x2) PCIe lanes across the P1 and P2 connectors.

Memory resources include 16 GB DDR3L SDRAM, up to 32 GB NAND Flash (SSD), 32 MB BIOS Flash and 16 MB BIOS backup Flash.

The SBC347A incorporates a range of security features designed to assist with user defined Anti-Tamper and Information Assurance strategies. These include an inherently secure FPGA solution (SmartFusion2 from Microsemi), and support for Intel's Trusted Execution Technology.

The SBC347A is designed to meet the requirements of a wide range of applications from industrial through to fully rugged defense and aerospace programs. It offers extended temperature capability and a range of air- and conduction-cooled build levels.

A rich software choice is planned for the SBC347A, including comprehensive Deployed Test Software (FSP-enabled BIT, and BCS) plus operating system support for Microsoft Windows 7, Open Linux (Fedora), Red Hat® Enterprise Linux, Wind River Linux, and VxWorks. Examples and assistance are also available for integrating 'chain of trust' operation (from power-up to application start), plus Wind River's FSP-enabled VxWorks Boot Loader, into system scenarios.

FEATURES:

- Single slot 3U VPX single board computer
- 5th Generation IntelLato Core™ i7 quad core processor (6 MB shared cache)
- Two channels of soldered DDR3L SDRAM with ECC up to 16 GB
- Up to 32 GB NAND Flash
- Rear I/O
  –2x 10GBASE-T ports (also configurable as 2x 1000BASE-T)
  – 1x VGA port
  – 1x DVI port
  – 3x SATA 6 Gb/s ports
  – 2x COM ports
  – 4x USB 2.0 ports
  – Up to 8x GPIO
- Five levels of ruggedization (convection and conduction cooling variants)
- AXIS and Deployed Test Software
- Microsoft® Windows®, Open Linux® and VxWorksLato support

abaco SYSTEMS

SBC347A *5th Generation Intel® Core™ i7 Based Rugged VPX Single Board Computer*

Specifications

Processor
- Intel 5th Generation Core i7 Processor
- i7-5850EQ (Quad Core) @ 2.7 GHz (47W) base frequency, up to 3.4 GHz TurboBoost (Note: CPU speed is dependent on environment, consult manual for details)
- 14 nm monolithic die processing technology
- 6 MB Last Level Cache

SDRAM
- 16 GB DDR3L SDRAM soldered with ECC

Non-Volatile RAM
- 512 kB FRAM

On Board Solid State Disk Drive (SSD)
- Up to 32 GB

BIOS
- 2x 16 Mb SPI Flash for BIT and BIOS plus 1x 16 MB SPI Flash for Recovery

Fabric Interface
- x4 PCIe Gen 3 to P1
- x4 PCIe Gen 3 to P2
- x2 PCIe Gen 2 to P1
- x4 PCIe Gen 2 to P2

Control Plane (Gig Ethernet)
- Dual 10Gigabit Ethernet interface via Intel's X540
- 10Gigabit Ethernet controllers – routed to VPX P1
- ETH0 and ETH1 are configured as 10GBASE-T by default. They can also be configured as 1000BASE-T

Management Plane
- Baseboard Management Controller (BMC) in accordance with VITA 46.11 Tier 1

USB Ports
- Four USB 2.0 ports are routed to P1 connector

Serial Ports
- Two 16550 compatible async serial ports are available on P1
- COM1 and COM2 can be configured as a 4-wire RS-232 port or an RS-422 port with TxD/RxD
- COM2 shares pins with various ancillary signals and can be configured as a 2-wire RS-232 port or a 4-wire RS-232/422 port

Video
- One VGA port routed to P2
- One DVI port routed to P2

SATA
- Three SATA ports (SATA0, SATA1, SATA2) are available on P1 and P2. All ports are 6 Gb/s capable
- One SATA port is routed to P1
- Two SATA ports are routed to P2. SATA2 port shares pins with other functions

GPIO
- Up to 8 GPIO pins (5V Tolerant) all of which share pins with other functions – so number is dependent on variant selected

LED
- 3x status LEDs and four BIT status

FPGA
- SmartFusion2 FPGA with advanced security features
  - Enhanced Anti-Tamper features
  - Zeroization

Power Requirements
- +5V (Vs3) for main power
- +3.3V for P3V3_AUX is required

OpenVPX Profile Compatibility
- MOD3-PAY-2F2T-16.2.5-3 (1000BASE-T control plane is capable of 10GBASE-T operation)

NVRAM / Watchdog / Timers / TPM / ETI / IPMI
- 512kB non-volatile RAM (MRAM)
- 2x 32-bit timers and a watch dog timer
- Timers in FPGA (SW programmable)
- TPM (Trusted Platform Monitor)
- ETI (Elapsed Time Indicator)

Temperature Sensor
- Board, CPU and PCIe switch temperature sensors

Other Hardware Features
- Hardware Write Protection
- IPMI

Transition Module
- SBC340RTM (6U high for use in SCVPX3U starter cage)

Environmental

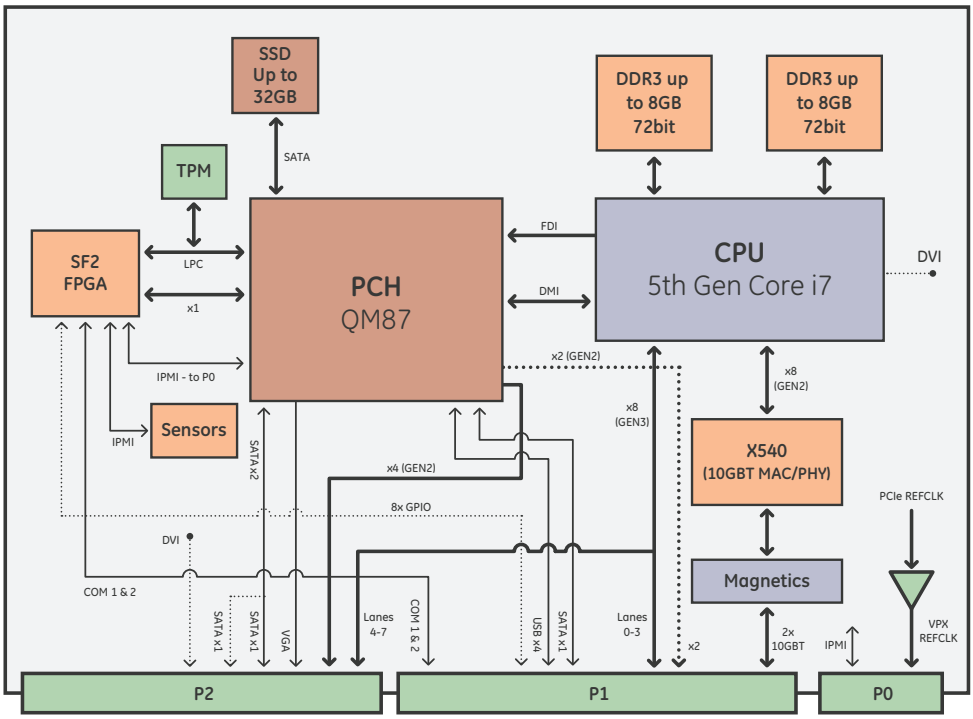
	Level 1	Level 2	Level 3	Level 4	Level 5
Cooling Method	Convection	Convection	Convection	Conduction	Conduction
Conformal Coating	Optional	Standard	Standard	Standard	Standard
High/Low Temp	0 to +55°C	-20 to +65°C	-40 to +75°C	-40 to +85°C	-40 to +85°C
Operational	(300 ft/m)	(300 ft/m)	(600 ft/m)	At cold wall	At cold wall
Random Vibration	0.002g2/Hz*	0.002g2/Hz*	0.04g2/Hz**	0.1g2/Hz**	0.1g2/Hz**
Shock	20g***	20g***	20g***	40g***	40g***

**With a flat response to 1000 Hz, 6 dB/Oct roll-off from 1000 to 2000 Hz ** From 10 to 1000 Hz ***Peak sawtooth 11 ms duration

Note: Processor performance and temperature are inter-dependent. For a given temperature, a maximum speed is achievable, and conversely for a given processor speed a maximum temperature is achievable. Consult the product manual for details.

SBC347A *5th Generation Intel® Core™ i7 Based Rugged VPX Single Board Computer*

Block diagram



About Abaco Systems

Abaco Systems is a global leader in open architecture computing and electronic systems for aerospace, defense and industrial applications. Spun out of General Electric in 2015, we deliver and support open modular solutions developed to upgrade and enhance the growing data, analytics, communications and sensor processing capabilities of our target applications. This, together with our 700+ professionals' unwavering focus on our customers' success, reduces program cost and risk, allows technology insertion with affordable readiness and enables platforms to successfully reach deployment sooner and with a lower total cost of ownership. With an active presence in a significant number of national asset platforms on land, sea and in the air, Abaco Systems is trusted where it matters most.

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