Standard Products

UT699 Single Board Computer

Fact Sheet
May, 2012
www.aeroflex.com/LEON

OVERVIEW

Off -the-shelf 3U cPCI form factor Single Board Computer (SBC) based on the UT699 LEON 3FT 32-bit SPARCTM V8 Microprocessor. The UT699 SBC addresses size (160mm x 100mm), weight (<4 pounds) and power (<5.5W). The UT699 SBC has a path to flight (non-flight and flight variants to be available). The UT699 SBC includes an FPGA, volatile and non-volatile memory, 10 user defined A/D channels, 192 pin mezzanine connector (1) and the following interfaces: SpW (4), USB (1), cPCI 33MHz/32bit (1), JTAG (1), 10/100 Ethernet (1) for terrestrial use. The non-flight UT699 SBC is also available in the ALExIS (Aeroflex LEON Experimenter's Interface System) development platform.

FEATURES

- Proven microprocessor technology
  - Based on the UT699 LEON 3FT 32-bit SPARC^{TM} V8 Microprocessor
  - UT699 at 66MHz, 89 DMIPs throughput
  - Flight heritage
  - Industry standard development tools; real-time software operating system support
- Addresses size, weight and power (SWaP)
  - Size: Small, 3U cPCI form factor, 160mm x 100mm
  - Weight: 3.8 lbs (Estimate)
  - Power: <5.5W
- Development prototype version consists of the following:
  - One (1) UT699 LEON 3FT Microprocessor
  - One (1) Xilinx Virtex-4 LX100 support FPGA
  - 8MB of non-volatile memory organized into 2Mx32
  - 64MB of SDRAM organized into 4M x 32 x 4 banks
  - 16MB of SRAM organized into 2M x 32
  - One (1) RS-422 UART interface
  - Four (4) ECSS-E-50-12A standard SpaceWire (SpW) ports
  - One (1) 10/100M Ethernet ports
  - One (1) 33MHz/32-bit standard cPCI interface
  - One (1) JTAG interface for programming and debug of UT699 LEON3FT
  - One (1) 192-pin mezzanine card expansion connectors
  - Ten (10) user defined A/D channels (0 to 2.5 VDC)

PATH TO FLIGHT

- Flight unit is drop-into the prototype version with appropriate changes to component selection for guaranteed radiation performance
- Environmentally hardened parts (i.e. UT6325 Eclipse RadTol FPGA)
  - De-population of Ethernet port
- Customized versions available (examples: 6U SBC with more memory, 3U SBC with different interface mix, specific mezzanine cards for plug into SBC i.e.1553 mezzanine)

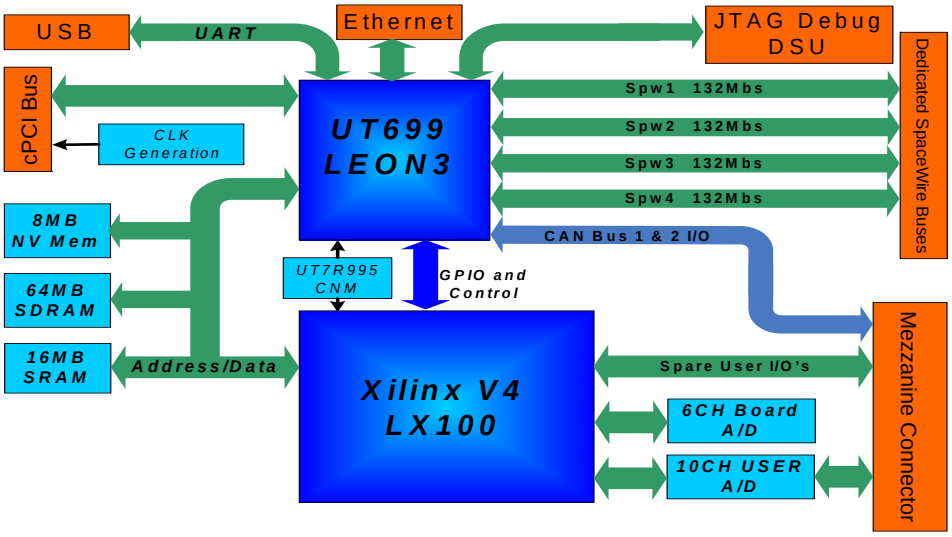

Figure 1: UT699 SBC Block Diagram

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ALExIS Development System

Fact Sheet
November, 2011
www.aeroflex.com/LEON

OVERVIEW

- ALExIS stands for Aeroflex LEON Experimenter's Interface System, which is a self-contained Development Platform that comes with Hardware and Software Components
- ALExIS is a ready to run Development Platform with a flexible architecture to support a variety of customer applications
- ALExIS decreases development time and user learning curve
- ALExIS comes with a non-flight UT699 Single Board Computer (SBC) which has a path to flight

FEATURES

- Self-contained 3UcPCI Chassis
- Includes an off-the-shelf 3U cPCI UT699 SBC, with the following highlights:
  - UT699 LEON 3FT 32-bit SPARC^{TM} V8 Microprocessor; 66 MHz, 89 DMIPS
  - Weight <4 pounds; Power <5.5W
  - Includes a reconfigurable FPGA, volatile and non-volatile memory, 10 user defined A/D channels, and 192-pin mezzanine connectors (2)
  - Includes the following interfaces: SpW (4), USB (1), cPCI 33MHz/32bit (1), JTAG (1), UT699 LEON Debug Port (1), 10/100 Ethernet (1)
- The UT699 SBC operates as a system control board and provides 33MHz cPCI Clocks and bus arbitration
- Completely self-contained unit with a power card. Provides additional user cPCI backplane power (5V @ 2A, 3.3V @ 3A), generates cPCI Power-up Reset (3.3V level, 200mS).
- Includes a Touch Screen Display/ Video Interface Card which offloads processing from the UT699 to the Mezzanine Card
  - Includes an embedded 32-bit RISC video processor
  - 4.3 inch touch screen display with external USB I/F
  - Demonstrations and preloaded operating systems and drivers can be selected using the Touch Screen
  - Includes preloaded operating systems and application drivers. OS options include: LINUX, RTEMS, VxWorks. Driver options include: drivers for SpW, Ethernet, cPCI Host
- Includes two (2) open cPCI slots for future/customer designed cards such as: SpaceWire Router, Telemetry, 1553, A/D
- Customer software can be loaded onto the ALExIS via USB interface port and GRMOM (available from Aeroflex Gaisler) into the single board computer's main NV, SRAM or SDRAM memory
- GRMON and a Xilinx USB JTAG pod are required for ALExIS software development

Figure 1: ALExIS

Aeroflex Colorado Springs - Datasheet Definition

Advanced Datasheet - Product In Development

Preliminary Datasheet - Shipping Prototype

Datasheet - Shipping QML & Reduced Hi-Rel

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