TTEEnd System A664 Lab (XMC) v2.0

The new generation of deterministic Ethernet end system cards for evaluation and testing

Key Benefits

- Deterministic Ethernet evaluation and development platform for aviation applications
- Three supported traffic classes
  - Best-effort Ethernet (IEEE 802.3)
  - Rate-constrained (ARINC 664 part 7)
  - Time-triggered traffic (SAE AS6802)
- Two full duplex Ethernet ports 100/1000Mbit/s
- End System IP based on DO-254 certifiable TTEEnd System A664 Core IP Pro
- Maintain parity with flight grade XMC card (MOSA / SOSA™ / HOST aligned)

TTEEnd System A664 Lab (XMC) v2.0 is the new generation of deterministic Ethernet end system cards for laboratory evaluation, development and testing applications, based on our RTCA DO-254 DAL A certifiable TTEEnd System A664 Core IP Pro. It supports three configurable network traffic classes (time-triggered, rate-constrained, best-effort) in parallel on one physical infrastructure with 1 Gbit/s physical link speed.

Product Description

TTEthernet® permits the integration of synchronized and non-synchronized functions in Ethernet-based distributed systems. While hard real-time applications enjoy reserved bandwidth, full determinism and delivery jitter below 1 µs by using TTEthernet®, standard IEEE 802.3 Ethernet traffic operates without impact on these time-critical and synchronized functions.

TTEEnd System A664 Lab (XMC) v2.0 is a conduction cooled XMC single-width mezzanine card and aligns with the Single Board Computer payload slot profile SLT3-PAY-1F1F2U1TU1T1U1T-14.2.16 as defined in ANSI/VITA 65.0-2021 and MOSA/SOSA/HOST standards. It offers two 100/1000 Mbit/s Ethernet ports with P16 rear-I/O interface to transmit and receive frames redundantly, while using PCIe 2.0 x4 as host bus on the P15 connector.

TTEEnd System A664 Lab (XMC) v2.0 is intended for deterministic Ethernet evaluation and as a platform for early integration phase in aviation projects. With an end system function based on our certifiable DO254 TTEEnd System A664 Core IP Pro and a driver support based on our certifiable DO-178C TTE-COM architecture, it provides a solution that eases the migration of lab-based applications into flight development programs.

Application Fields

- Technology evaluation
- Product testing
- Architecture development

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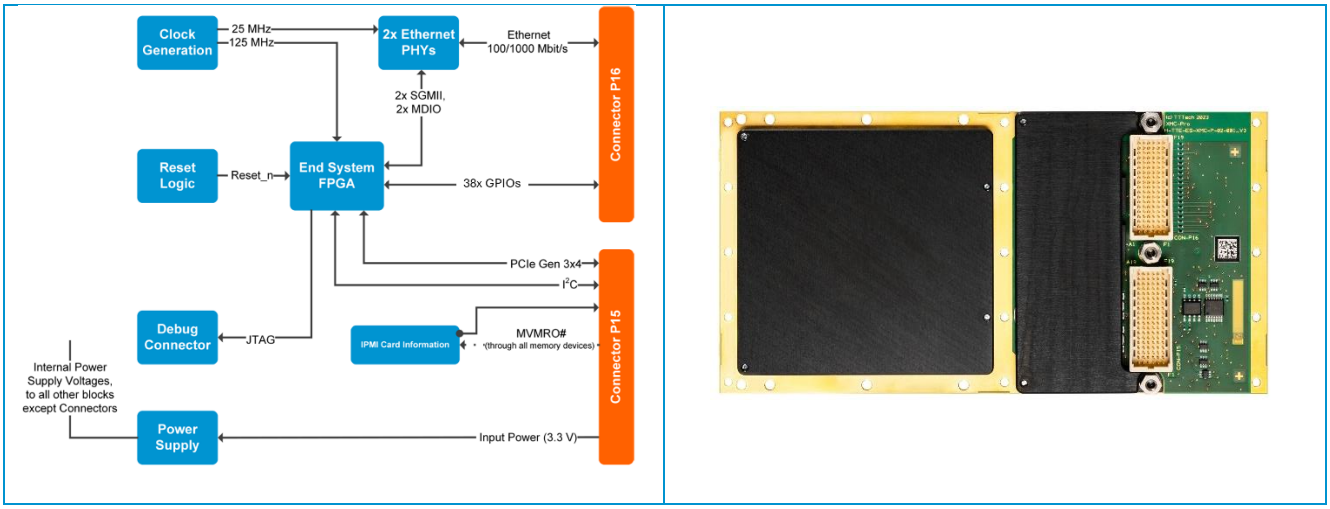

TTEEnd System A664 Lab (XMC) v2.0, functional block diagram (left), top view (right)

End System Capabilities	– 2x 100/1000 Mbit/s full duplex Ethernet ports – Configurable Ethernet traffic classes and protocol services: ○ Time-triggered (SAE AS6802) traffic ○ Rate-constrained (ARINC 664 part 7) traffic ○ Standard Ethernet (IEEE 802.3) traffic – 256 output VLs, 2048 input VLs, 1024 output ports, 4096 input ports – 2 input & output memory partitions/access points – Flexible configurable periods (µs granularity) – Profiled IP/UDP, sampled and queued COM port network interfaces, handled in hardware – DMA support for optimized data throughput performance
Interfaces	– P15 connector: Power Supply, PCIe signals, I2C – P16 connector: Ethernet ports, GPIOs, Discretes
Supported Standards	– ANSI/VITA 20-2001 (R2011) – ANSI/VITA 42.0-2021 – ANSI/VITA 61.0-2014 – ANSI/VITA 46.9-2018 (P16 connector P1w9-X12d+P2w3-X38s+X8d mapping) – ANSI/VITA 65.0-2021(SBC payload slot profile SLT3-PAY-1F1F2U1TU1T1U1T-14.2.16) for VPX designs
Dimensions	143.75 x 74 x 10 (mm)
Weight	125g
Power Supply	+3.3 V external power supply
Power Consumption	6.5W max
Environmental Operating Range	– Operating Temperature: 0°C to 55°C – Relative Humidity: 25-90%
Software Driver Support	TTE-COM Driver Linux Ubuntu 20.04 included (other distributions and OS optional)
Documentation	– User Manual – Example applications
Order Number	13434 - TTEEnd System A664 Lab (XMC) v2.0
Recommended products	14575 - XMC To PCIe Carrier TTTech 13056 - TTETools 5 Starter (mandatory, sold separately) 13057 - TTETools Bundle v5.x (Expert) 14243 – TTEEnd System A664 Pro (XMC) v2.0

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