KBox C-102-2
TSN STARTERKIT

Kontron TSN Network Starterkit

▶ Pre-installed TSN platform for Industrial Automation

▶ Integrated four port 10/100/1000 Mbps TSN switch, no external switches needed

▶ Ready to go, including Realtime Linux and TSN monitoring & management applications

▶ Field upgradable hardware and software prepared for TSN standards evolution

POSSIBILITIES START HERE

kontron
S&T Group

KBox C-102-2 TSN STARTERKIT
Ready to go IEEE-802.1 TSN Starterkit for TSN Networks

Time Sensitive Networking

Time Sensitive Networking (TSN) is a set of international standards (IEEE-802.1 TSN), based on Ethernet, which leads into a standardized Industrial Ethernet for both the needs of a classical IT environment and the operational fieldbus area.

Under the given challenges of IIoT and Industry 4.0 it is essential that the process data information from the production field (edge) into the local server landscape (fog) to the cloud will be implemented smoothly. Today's challenges are tied to the interfaces from the production floor, which is typically dominated by a scattered landscape of real time capable fieldbus networks, into the IT level. Realized by gateways, these interfaces create enhanced complexity, cost and management overhead.

The benefits are obvious and will span across a simplified network infrastructure, lower product cost and even introducing virtual networks and server infrastructure.

The Kontron KBox C-102-2 TSN Starterkit is a ready-to-go system solution including the modular Gigabit Ethernet interface card PCIe-0400-TSN with Time Sensitive Networking support that will be used to connect to time sensitive (deterministic) and redundant networks according to IEEE-802.1 TSN.

Based on standard Ethernet according to IEEE-802.3, the quad network interfaces with switching function can be used to build deterministic control applications in converged networks from the production floor to the IT level. The system comes with Realtime Linux and appropriate network management tool to enable a quick setup of a TSN network in industrial applications.
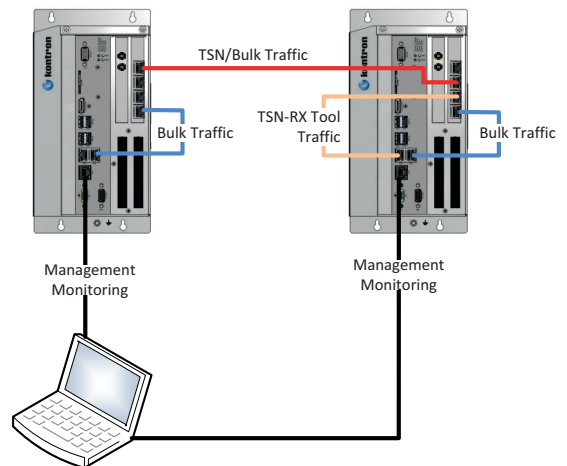
Target applications include

▶ Deterministic IEEE-802.1 TSN enabled Industrial control computers and servers
- Edge & Fog environments
- TSN to Fieldbus Gateways

▶ Converged networks for critical and non-critical traffic (from IT to OT)

▶ Protection & isolation of deterministic traffic from malicious attacks

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▶ SETUP EXAMPLES

Dual KBox Setup (Duo systems)
▶ 2 KBox connected as peers for synchronization and TSN traffic
▶ User PC just needed for Monitoring.
▶ No special SW or RT Linux needed on user PC

▶ TECHNICAL INFORMATION

SYSTEM		KBox C-102-2 industrial computer with PCIe-0400-TSN network card Realtime Linux + Tools
PROCESSOR		Intel® Core™ i5-6442EQ processor: Quad-Core 1.9 GHz, 4 GByte RAM, 128 GByte SSD
TSN NETWORK CARD		PCIe, 4 Ethernet 10/100/1000Mbps ports
SWITCH OPERATION		Cut through, StoreAndForward
SUPPORTED TSN STANDARDS IEEE-802.1 TSN		- 802.1 as(rev) timing and synchronization - 802.1 Qbv traffic scheduling - 802.1 Qbu frame preemption - 802.1 Qcc Stream Reservation Protocol enhancements (in progress) - 802.1 CB, Qci, … N/A – will be provided per update
SOFTWARE SUPPORT	**OPERATING SYSTEM**	- RT Linux Operating System - BIOS with RT patches - TSN NIC driver - TSN switch driver - PTP4 Linux stack (IEEE802.1AS) - Startup scripts
	APPLICATIONS	- TSN TX sample application - TSN RX monitoring application - Ostinato Network traffic generator - TSN schedule config. tool
POWER		24 VDC direct input, 230 VAC / 24 VDC adaptor included
DIMENSIONS		290 x 155 x 210 mm (11.42" x 6.1" x 8.27")
ENVIRONMENTAL	**OPERATING TEMPERATURE** **STORAGE TEMPERATURE** **CLIMATIC HUMIDITY**	0 °C to +60 °C -40 °C to +85 °C (-40 °F to 185 °F) 93 % RH at 40 °C, non-condensing (acc. to IEC 60068-2-78)
RoHS COMPLIANT		yes

▶ ORDERING INFORMATION

ARTICLE	DESCRIPTION
KBOX C-102-2 TSN STARTER KIT (DUO)	Dual KBox C-102-2 including PCIe-0400-TSN IEEE-802.1 TSN network interface card and cables. Ready-to-go with preinstalled Realtime Linux and tools

▶ Global Headquarters

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