

# TRACe G304-TR

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## EN50155 CERTIFIED GATEWAY

- ▶ Fanless Box Computer for rolling stock Gateway Applications
- ▶ Intel® Atom™ E3845 quad-core @ 1.91 GHz (Bay Trail)
- ▶ Connectivity: 2x LAN, 1x WWAN with GPS, 1x WLAN
- ▶ IP50 Ingress Protection from all Directions
- ▶ EN50155 Class Tx (Operating -40°C to +70°C / 10 min @ +85°C)

## ▶ PRODUCT OVERVIEW

Kontron TRACe G304-TR is an EN50155 certified fanless Operational Computer. This "G" version is a certified Gateway enabling data connectivity to telemetry devices, station and train control, specifically designed for rolling stock remote control operations and infotainment applications.

The G304-TR version is based on a COMExpress® CPU module featuring Intel® Atom E3845 quad-core @ 1.91 GHz (Bay Trail). It has been designed to ensure stable operation in harsh environments.

Thanks to its various communication channels, Kontron TRACe G304-TR is ideal for any Gateway applications:

### WIRED NETWORKING:

- ▶ Kontron TRACe G304-TR offers 2 independent Gigabit Ethernet LAN through isolated and filtered M12 connectors.

### WIRELESS NETWORKING:

- ▶ TRACe G304-TR features 1x WLAN 802.11 a/b/g/n Wi-Fi network interface, supporting the high transmission data rate and reliable performance ideal for streaming multimedia applications. It provides 3-stream MIMO configurations, which is a suitable choice for Wi-Fi applications, such as high-end Wi-Fi applications (mesh network, wireless monitor, and high-end computer) or digital networking equipment (access point, router, set-top box, and gateway), and video-over-wireless applications.

- ▶ Kontron TRACe G304-TR enables WWAN network connection through a 2G/3G/4G cellular modem (dual SIM support) offering LTE/HSPA+/GSM/GPRS/EDGE/EV-DO Rev A/1x RTT interfaces and even GPS location solutions: A-GPS, gps XTRA and Glonass.

The Kontron TRACe G304-TR features a wide range power supply (from 24 VDC to 110 VDC). Its front plate is dedicated to the operational connectors (certified I/O according to EN50155 standard: Ethernet, Serial ports, Audio, Digital Inputs and Outputs) whereas the rear plate hosts maintenance connectors (DisplayPort, USB, Serial, Ethernet).

Internally, Kontron TRACe G304-TR also provides 2 x 2.5" SATA disks connections.

TRACe G304-TR has been designed to support a comprehensive health management capability, thanks to sensors and a microcontroller for system health monitoring.

The integrated microcontroller monitors boards and in-box ambient temperature, voltages, current and even manages Vital Product Data (P/N, S/N, EC Lvl...) of main components.

Health management middleware by Kontron covers all the vital resources of TRACe™ to report, log, and transmit any out of specs parameters and/or any failures at power-on and during operations of TRACe G304-TR.

## ▶ TECHNICAL INFORMATION

PROCESSOR		Intel® Atom™ Bay E3845 quad-core @ 1.91 GHz (Bay Trail-I Platform)
MEMORY	System Memory Flash	2 GB DDR3 with ECC 8 GB soldered SLC Flash (eMMC)
CONNECTIVITY	LAN WLAN WWAN GPS Location Solutions	2x LAN GbE (M12 connectors) 1x Wi-Fi 802.11 a/b/g, 802.11n 3T3R up to 450 Mbps 1x 4G modem LTE/HSPA+/GSM/GPRS/EDGE/EV-DO Rev A/1xRTT A-GPS, A-GNSS, gps XTRA, Glonass
MASS STORAGE		2 SATA connections –for 2.5 inch HDD or SSD
GRAPHIC CONTROLLER		Integrated 1D/3D Graphics Engine, GMA 3650/3600, Gfx clock 640/400 MHz, DirectX®9.1, Video Decode: MPEG2, Blu-Ray Disk 2.0, VC-1, H.264, WMV9 up to 1080p DisplayPort / 1366x768@112 MHz
OPERATIONAL PLATE	Interface/resolution Serial Ethernet Audio Controller Audio Interface Digital Input Digital Output LED	2x serial ports (RS232-RS422-RS485), software configurable 2x Ethernet 10/100/1000 Mb/s, M12 X-coded 8-poles Female connectors Intel® High Definition Audio w/ HDMI 1.3a support Stereo Line In, Stereo Line Out 4x Inputs (sink current 10 mA, 1.5 Kv insulation) 4x Outputs (open drain 24 VDC/10 mA, 1.5 Kv insulation) 1x System Power LED
MAINTENANCE PLATE	Serial port USB Ethernet Display LEDs	1x serial port 1x USB 3.0 (Super Speed 4 Gb/s), 1x USB 2.0 (Hi Speed 480 Mb/s) 1x Ethernet 10/100/1000 Mb/s 1x DisplayPort 2x User LEDs, 1x Power LED, 1x Alarm LED, 1x System LED Input Voltage wide range 24 VDC...110 VDC (Class S2, 10 ms interruption) <sup>(*)</sup>
POWER SUPPLY		
EXTENSION		2x SIM card holders (Dual SIM support), 2x 2.5" SATA Disk holders 1x mSATA using Mini PCI-Express card slot (shared with one 2.5" SATA)
PROTECTION CLASS		IP50 on all faces
SUPPORTED OS		Linux (Fedora 22), Windows 7, Windows Embedded Standard 7, Windows Embedded Standard 8
OPTIONS		Conformal coating

<sup>(\*)</sup> Depending on hardware revision, nominal input voltage range might be limited to 24-48 VDC; please refer to "SDDTG45 - TRACe-TR Family User's Manual" for detailed information.

## ► ENVIRONMENTAL SPECIFICATIONS

OPERATING TEMPERATURE		-40°C up to +70°C (with 10 min at +85°C) EN50155 Class Tx
ENVIRONMENT / CERTIFICATIONS	ITE Safety Europe Railway Safety Thermal Operating Climatic Test Random Vibration Shock EMC Emission EMC Immunity ECM and ERM GSM and MS Radiated Emissions Others Environmental Protection	EN 60950-1: 2006 +A1: 2010 +A2: 2013 + A11: 2009 +A12: 2011 . Safety Europe Directive Supply Voltage: EN 50155: 2007. Railway Class Tx EN 50155 / NF EN 60068-2-1: 2007 / NF EN 60068-2-2: 2007 . Railway Damp heat (55°C , 95% Relative Humidity), cyclic EN 50155 / NF EN 60068-2-30 Railway Operating, Long life testing EN 50155 / NF EN 61373: 2011-04 / NF EN 60068-2-64: 2008 EN 50155 / NF EN 61373: 2011-04 / NF EN 60068-2-27: 2009. Railway Class 1B EN 50155 / NF EN50121-3-2 / EN 55011 <sup>(*)</sup> EN 50155 / NF EN50121-3-2 / EN 61000-4-2 / -4-3 / -4-4 / -4-5 / -4-6 R & TTE (EN300328 V1.8.1) R & TTE (EN301 511 V9.0.2) R & TTE (EN301 901-1 V5) CE, UL, WEEE, RoHS IP50 rating (NF EN 60529: 2000) <sup>(*)</sup>

<sup>(\*)</sup> Tests validated with optional Cover Plate P/N TRACE-KITMT-1-V01 on Maintenance side.

## ► DIMENSIONS



## ► ORDERING INFORMATION

ARTICLE	ORDER CODE	DESCRIPTION
TRACe	TRACE-G304-TR	EN50155 certified fanless Gateway, Intel® Atom E3845 Bay Trail (quad core @ 1.91 GHz) COMe CPU, 2 GB DDR3 with ECC, 8 GB eMMC soldered Flash, Wi-Fi 802.11 a/b/g/n 3T3R up to 450 Mbps, 3G/4G/GNSS, 128 GB SSD MLC I-TEMP, Railway certified wide range PSU 24 VDC-110 VDC, EN50155 Class TX (-40° to 70° C / 10min @ 85°C)
TRACe	TRACE-B304-TR	EN50155 certified fanless Operational Computer (Generic Baseline), Intel® Atom E3845 Bay Trail (quad core @ 1.91 GHz) COMe CPU, 2 GB DDR3 with ECC, 8 GB eMMC soldered Flash, 05 less , 3 mPCIe slots, Railway certified Wide range PSU 24 VDC-110 VDC, EN50155 Class TX (-40° to 70° C / 10min @ +85° C)
TRACe	TRACE-B314-TR	EN50155 certified fanless Operational Computer (Generic Baseline), Intel® Atom E3845 Bay Trail (quad core @ 1.91 GHz) COMe CPU, 2 GB DDR3 with ECC, 8 GB eMMC soldered Flash, 05 less , 3 mPCIe slots, Railway certified Wide range PSU 24VDC-110VDC, EN50155 Class TX (-40° to 70° C / 10min @ +85° C), USB on M12 connector, IP54
TRACe	TRACE-V304-TR	EN50155 certified fanless Network Video Recorder, Intel® Atom E3845 Bay Trail (quad core @ 1.91 GHz) COMe CPU, 2 GB DDR3 with ECC, 8 GB eMMC soldered Flash, Wi-Fi 2T2R up to 300 Mbps, 2x disks tray for up to 2x removable 2.5" SATA disks. Railway certified Wide range PSU 24 VDC-110 VDC, EN50155 Class TX (-40° to 70° C / 10min @ 85°C)
TRACe	TRACE-M304-TR	EN50155 certified fanless Management Computer, Intel® Atom E3845 Bay Trail (quad core @ 1.91 GHz) COMe CPU, 2 GB DDR3 with ECC, 8 GB eMMC soldered Flash, MVB Class 1 : Process Data + Bus Administrator, Wi-Fi 802.11 a/b/g/n 2T2R up to 300 Mbps, 128GB SSD MLC I-TEMP, Railway certified Wide range PSU 24 VDC-110 VDC, EN50155 Class TX (-40° to 70° C / 10min @ 85°C)
CABLE	TRACE-KIT-CAB-EVAL	Set of Cables for TRACe™ evaluation, consisting of: <ul style="list-style-type: none"> <li>► 1x Cable ASSY - Power (M12-A coded to free end),</li> <li>► 1x Ethernet (M12-X coded to RJ-45),</li> <li>► 1x Serial (RJ-12 to dual DB9)</li> </ul> (see TRACe-TR Family User's Manual)
CABLE	TRACE-KITSATA-2	Set of SATA cables to install one 2,5" SSD on TRACe™, consisting of: <ul style="list-style-type: none"> <li>► 1x SATA Pow cable,</li> <li>► 1x SATA Data cable,</li> <li>► 4x screws</li> </ul>
CABLE	TRACE-STARTERKIT-1	Complete set of cables / accessories for TRACe evaluation, consisting of: <ul style="list-style-type: none"> <li>► 1x AC/DC converter cable assembly for DC-IN</li> <li>► 1x USB Key Fedora 22 TRACe Live Image</li> <li>► 1x M12 to RJ-45 Ethernet Cable</li> <li>► 1x DisplayPort to VGA adapter</li> <li>► 1x Serial cable (RJ-12 to dual DB9: CPU_A, CPU_B) : 1x KIT-2X-RJ12DB9</li> <li>► 3x Wi-Fi antennas Dual Band 2,4 GHz-5 GHz ,</li> <li>► 2x 3G/LTE antennas 5dBi,</li> <li>► 1x GPS antenna</li> </ul>
COVER PLATE	TRACE-KITMT-1-V01	Maintenance Cover Plate for Dust & Water Protection

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