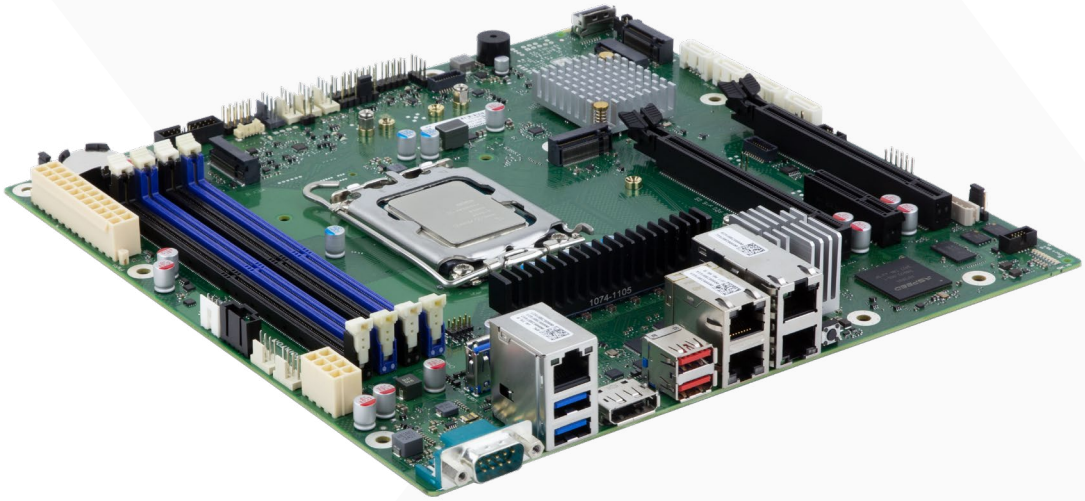
K3881-C µATX
Industrial Server



Intel® C266 Chipset and
Intel® XEON® 6300 series Processors
Intel® XEON® E-2400 series Processors
Pentium® Gold G7400T / G7400 Processors

- Latest DDR5 memory technology for best-in-class system performance
- ECC support
- Display Port ASPEED AST2600
- Remote Management
- 10GbE Dual Lan
- Prepared for 5G

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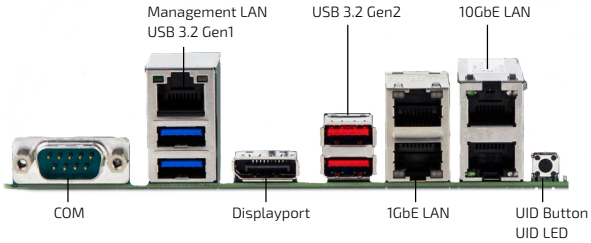
Product Highlights

K3881-C1 µATX Industrial Server

The K3881-C µATX is the first industrial Server Motherboard designed and made in Germany by Kontron. A custom BMC was developed for the motherboard, enabling remote management while ensuring the highest level of security. It provides an enterprise-grade solution for small businesses and entry-level cloud services which require server solutions with professional-grade reliability, expandability, and enhanced security capabilities. The K3881-C is full-featured with 10 GbE high speed ethernet, 3x PCI Express, 4x M.2, NVMe, ECC-Support, 5G Kontron Wireless solutions support and many more features for server usages. With an availability of 5+ years and 24/7 continuous operation, a reliable and stable solution is guaranteed.

- Intel® XEON® 6300 series Processors
- Intel® XEON® E-2400 series Processors
- DDR5-5600 UDIMM, max 128 Gbyte, ECC
- ASPEED AST2600 Video Graphic Adapter
- 1x Displayport 1.1a
- PCI Express® Gen5 x 16 (PEG)
- PCI Express® Gen4 x 4 (mechanical x16)
- PCI Express® Gen4 x 1 (open slot)
- 8 Bit GPIO
- 2x USB 3.2 Gen1, 2x USB 3.2 Gen2
- Internal USB3.2 Gen 1 header (2ports)
- Internal USB3.2 Gen 1 Stick socket
- 2x Intel® i210 1GbE
- 1x Intel® E610 10GbE Dual Port
- 4x SATA 6G
- 1x MCIO PCIex4 or 4x SATA 6G
- TPM Module Header
- 2x M.2 Key-M ,PCIe x4 Gen4/NVMe SSD modules
- 1x M.2 Key-B, PCIe x1 Gen4 / USB 3.2 Gen 1 (5G ready)
- 1x M.2 2230 (Key-E, WLAN/Bluetooth modules, PCIe)
- 1x RS-232 support onboard
- HW Watchdog onboard (BMC)
- ATX Multirail



Technical Information

SYSTEM	PROCESSOR	Intel® XEON® 6300 series Processors Intel® XEON® E-2400 series Processors Pentium® Gold G7400T / G7400 processors Socket LGA1700, max 95W TDP
	CHIPSET	Intel® C266 Chipset
	MEMORY	DDR5 4800/5600 ECC SDRAM* 4 DIMM Sockets UDIMM DDR5-4800/5600*, max. 128 GByte Dual Channel unbuffered, ECC Effective memory speed of DDR5 modules according Intel® specification: 1x DIMM per channel = max. DDR5-4400* 2x DIMM per channel (single rank) = max. DDR5-4000 2x DIMM per channel (dual rank) = max. DDR5-3600
VIDEO	GRAPHICS	ASPEED AST2600 Video Graphic Adapter 1x Displayport 1.1a
NETWORK CONNECTION	ETHERNET1	Intel® I210AT with 10/100/1000 MBit/s, shared LAN port with BMC Wake-on-LAN (WoL) by interesting Packets, Link Status Change and Magic Packet™, PXE Support, BIOS MAC Address Display, Teaming Support
	ETHERNET2	Intel® I210AT with 10/100/1000 MBit/s, Wake-on-LAN (WoL) by interesting Packets, Link Status Change and Magic Packet™, PXE Support, BIOS MAC Address Display, Teaming Support
	ETHERNET3/4	Intel® E610-XAT2 dual 10GbE, shared LAN port with BMC, PXE Support, BIOS MAC Address Display, Teaming Support
	MANAGEMENT LAN	Realtek RLT8211F for System Management (BMC LAN)
PERIPHERAL CONNECTION	USB	2x USB 3.2 Gen1, 2x USB 3.2 Gen2 Internal USB3.2 Gen 1 header (2ports) Internal USB3.2 Gen 1 Stick socket
	SERIAL PORT	1x RS232 (rear I/O, DB9 connector)
	OTHER I/OS	8 Bit GPIO (Input/Output); 3.3 V/5 V/12 V supply voltage output; SMBus controller PCA9554A
	PMBUS	1x PMBus Connector
	SGPIO	1x SGPIO
	SIM CARD	1x nano SIM Card

Technical Information

STORAGE & EXPANSION	SATA SATA / PCIE PCIE/M.2 SLOTS	4x Serial ATA III 600 Interface (up to 6GBit/s), NCQ, AHCI, VROC 4x Serial ATA III 600 Interface (up to 6GBit/s), NCQ, AHCI, VROC or 1x 4x PCIe Gen 4 1x M.2 2230/2280/22110 (Key-M ,PCIe x4 Gen4/NVMe SSD modules) 1x M.2 2280/22110 (Key-M ,PCIe x4 Gen4/NVMe SSD modules) 1x M.2 3052/2260/2280 (Key-B, PCIe x1 Gen4 USB 3.2 Gen1) 1x M.2 2230 (Key-E, WLAN/Bluetooth modules, PCIe) 1x PCIe x16 Gen5 PEG, bifurcation support 1x PCIe x1 Gen 4 (open slot) 1x PCIe x4 Gen 4 (mechanical x16)
POWER	CONNECTOR	ATX (Multirail) plus 8-pin socket (12V for CPU)
FIRMWARE	BIOS WATCHDOG REAL TIME CLOCK TPM	AMI Aptio 5.x (UEFI) BIOS modified and adapted by Kontron; Recovery BIOS, SM-BIOS (DMI), BIOS and CPU Microcode Update, Quick Boot, Logo Boot, Quiet Boot, Plug & Play, Automatic DRAM and PCIe Configuration, BIOS Support for S.M.A.R.T., No legacy OS support, no MBR installation (UEFI only) BMC Hardware Watchdog Integrated TPM Module Header for Infinion TPM
SYSTEM CONTROL	FP HEADER SECURITY	1x Header for Reset button, HDD LED, Power button, Power LED, Unit ID switch and LED, Fault LED, LAN activity Recovery BIOS, System and BIOS Password, Boot Sequence Control, Serial-/ USB-Port Access Protection, Write Protection for Flash BIOS, EraseDisk (BIOS Feature),
SYSTEM Management		ASPEED AST2600, Kontron Open BMC, Redfish and IPMI support
COOLING	FAN	6x PWM fan (CPU/System)
SOFTWARE	OS SUPPORT	Windows Server 2022, Windows Server 2025, Linux-64 No legacy OS support, no MBR installation (UEFI only)
MECHANICAL	DIMENSION (L x W)	µATX: 9.6" x 9.6" (243.8 x 243.8 mm)
ENVIRONMENTAL	OPERATION TEMPERATURE	0 °C - 60 °C
CERTIFICATION	EMC + SAFETY	cTÜVus acc. IEC62368-1, CE Class A incl. Industrial Immunity, UKCA, FCC Class A verified

*) DDR5-4800/5600 memory modules are supported, but the maximum effective speed is limited to DDR5-4400 (Intel design limitation for systems with 4 DIMM sockets).

Power Supply Requirements

SOURCE	VOLTAGE	MIN. PS LOAD	MAX. VOLTAGE TOLERANCE	MOTHERBOARD CAPACITIVE LOAD	MOTHERBOARD MAX. CURRENT (continous)*
Main Power Supply	+12V	0 A	± 5 %	2500µF	16A
	-12V	n.a.	n.a	-	-
	+5V	0 A	± 5 %	1900µF	6A
	3.3.V	0 A	± 5 %	1000µF	0.5A

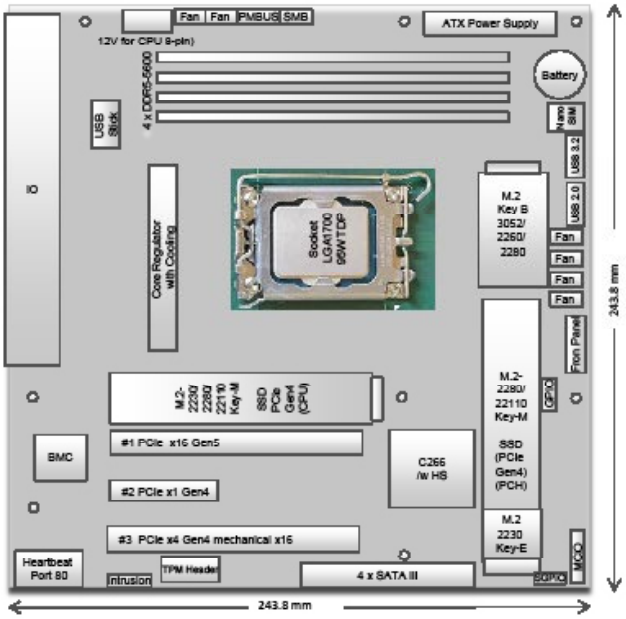
See TechNotes document for detailed power requirements

Technical Details

FEATURES	Chipset	Intel® C266
	DP / HDMI / LVDS / eDP	+ / - / - / -
	Stereo Audio / 5.1 Multichannel Audio / Front Panel Audio	- / - / -
	Buzzer / int. Speaker Support (stereo)	+ / -
	GbE LAN / Dual GbE LAN / 2.5GbE LAN / 10GbE LAN	- / + / - / +
	Out of Band Remote Management	+
	WoL*/ PXE / LAN Teaming / TSN	+ / + / + / -
	SATA / SATA RAID / M.2 (SATA) / M.2 (PCIe/NVME)	+ / + / - / +
	USB 2.0 / USB 3.2 (Gen1) / USB 3.2 (Gen2) / USB 3.2 (Gen2) Type-C	+ / + / + / -
	FAN monitored & controlled CPU Thermal Zone / Board Thermal Zone	+ / +
	TEMP monitored CPU / onboard sensors / external sensor	+ / + / -
SPECIAL FEATURES	Silent Fan / System Guard	+ / -
	Recovery BIOS / Flash Update / Multi Boot	+ / + / +
	HDD Password / EraseDisk / TPM V2.0 onboard / optional TPM module	+ / + / - / +
	BIOS POST- / BIOS Boot- / OS- HW Watchdog	+ / + / +
	Operating Mode 24-7 / 8-5 (hrs per day - days per week)	+ / -
	BMC Heartbeat / Port 80 / Fault LED	+ / + / +
	Motherboard operating temperature range (chassis inside) **	0 °C ... +60 °C
INTERNAL CONNECTORS	DIMM Sockets DDR5 / ECC Support	4 / +
	PCI Express® x16: 16lanes-Gen5 / PCI Express® x16: 4lanes-Gen4	1 / 1
	PCI Express® x1: Gen4-"open"	1
	SATA-III / M.2 Key-M SSD / M.2 Key-B	upto 8 / 2 / 1
	MCIO 4x (SATA orPCIe Gen4)	1
	SGPIO / SCSI Drive Activity Connector	1 / 1
	M.2 2230 (Key-E, PCIe & USB2.0 for WLAN/Bluetooth)	1
	Front Panel Audio (9-Pin, HD Audio) / S-PDIF Out (Digital Audio)	- / -
	USB 2.0 pin header (2 port) / USB 2.0 single port header / USB Stick socket	1 / - / 1
	USB 3.2 Gen1 pin header (2 ports) / USB 3.2 Gen2 Type A header	1 / -
	Serial COM header / CCTalk header[7] / Parallel Port header	- / - / -
	LVDS / LVDS Backlight / Embedded DisplayPort @ 4 lanes	- / - / -
	FAN PWM	6
	Intrusion (Case Open) / GPIO (8 Bit) / SMBus	1 / 1 / 1
	PMBus ***	1
	Stereo Speaker header / Digital Mic header	- / -
	Front Panel / Server extension header	1 / 1
	nano SIM Card	1
	SATA Drive Power Connector (5 V/12 V) / DC-In Connector 8-34 V (4 pin)	- / -
EXTERNAL CONNECTORS	DisplayPort V1.1a / HDMI / DVI / VGA	1 / - / - / -
	Audio Mic. In / Line in / Line out (or driver configuration)	- / - / -
	LAN (RJ-45 / BMC LAN)	4 / 1
	USB 2.0 / USB 3.2 Gen1 / USB 3.2 Gen2	0 / 2 / 2
	Multirail PSU (24 pin + 8 pin) / Single 12 V PSU	1 / -
	Serial COM interface	1

*) WoL on 1GbE ports.
**) Forced cooling required for high operating temperature range. See TechNotes document for details.
***) See Technotes for supported PSU Models.

Connector/Socket Diagram



Ordering Information

ARTICLE	PART NO.	DESCRIPTION
K3881-C1 µATX	F5110-V261	K3881-C1 Industrial Motherboard Intel® C266 Chipset
K3882-C1 µATX	F5110-V262	K3882-C1 Industrial Motherboard Intel® C262 Chipset

Accessories

TPM-MODULE	S26361-F5000-R012	Infineon SLB9670, TPM V2.0 (TCG compliant)
SLIM HEATSINK LGA1700 65W	F5000-C030	Box contains 40x cooler plus 40x backplate

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