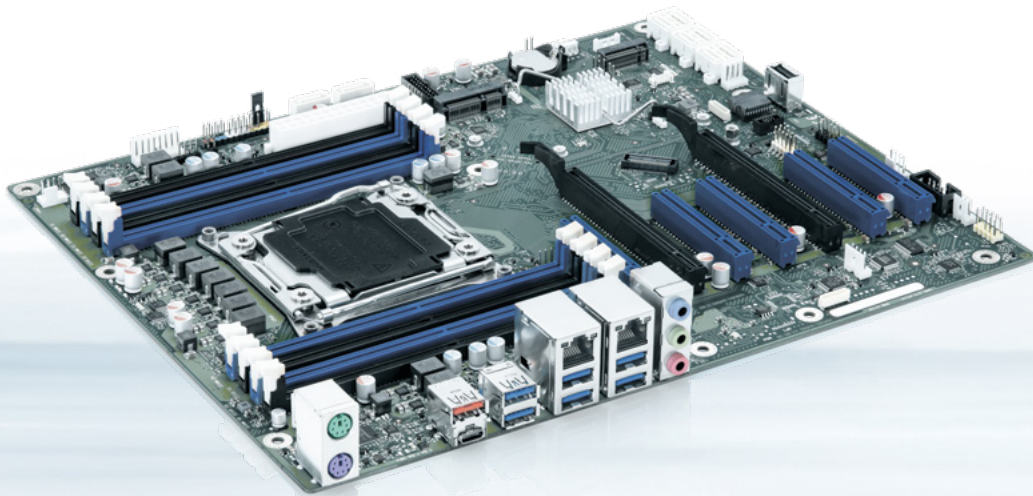


# D3598-G ATX

## Extended Lifecycle Series

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Intel® X299 Workstation chipset and  
Intel® Core™ High Performance i7/i9 X-series processors

- ▶ 2x PCIe x16
- ▶ Intel® VROC Support
- ▶ Dual LAN & Mini-PCIe Socket
- ▶ HW Watchdog
- ▶ USB 3.1 Gen2 Type C

POSSIBILITIES START HERE



# D3598-G ATX

## Extended Lifecycle Series

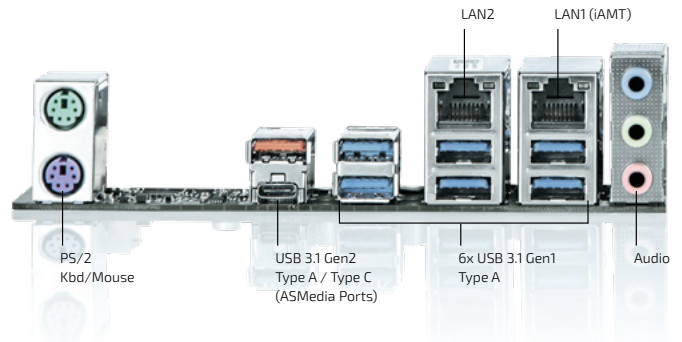
The Motherboard D3598-G ATX is the right choice for any demanding applications and needs. Featured by Intel® X299 Chipset, the D3598-G ATX supports the whole Intel® Core™-X-Processors Series. The perfect fit for any workstation and high performance

computing will be realized with 7 PCIe connectors, Dual Intel® GbE LAN, Mini-PCIe and M.2 onboard capability as well as M.2 Riser to support two or more additional M.2 in RAID mode.

### ▶ PRODUCT HIGHLIGHTS

- ▶ Intel® Core™ i7-78xxX/-98xxX Processors  
Intel® Core™ i9-79xxX/-98xxX/-99xxX/-109xxX Processors
- ▶ DDR4 2666/2933 SDRAM Memory, max. 256 GByte
- ▶ Mini-PCIe socket incl. USB 2.0
- ▶ 7x PCIe generation 3 onboard
- ▶ 5.1 multichannel audio onboard
- ▶ USB 3.1 Gen2, USB 3.1 Gen1 and USB 2.0
- ▶ USB 3.1 Gen2 Type C
- ▶ Dual Intel GbE LAN incl. Teaming support
- ▶ 8x Serial ATA III incl. RAID onboard
- ▶ Trusted Platform Modul (Infineon) V2.0 onboard
- ▶ BIOS-POST/-Boot & OS - HW Watchdog onboard

- ▶ M.2 SSD 2280 socket (PCIe, for NVMe modules)
- ▶ Intel® VROC (Virtual RAID on CPU) supported



### ▶ TECHNICAL INFORMATION

<b>SYSTEM</b>	<b>PROCESSOR</b>	Intel® Core™ i7-78xxX/-98xxX Processors Intel® Core™ i9-79xxX/-98xxX/-99xxX/-109xxX Processors Socket R4 (LGA2066), max. 165 W TDP, integrated Memory Controller (For details on supported processors please refer to Kontron FTP Server)
	<b>CHIPSET MEMORY</b>	Intel® X299 Workstation chipset 8 DIMM Sockets DDR4, max. 256 GByte, up to 4 channels Single-/dual- rank UDIMM DDR4 2133/2400/2666/2933, 1.2 V, 288-pin, non-ECC Effective memory speed may depend on installed processor and memory configuration
<b>VIDEO</b>	<b>GRAPHICS</b>	-
<b>AUDIO</b>	<b>AUDIO CODEC AUDIO INTERFACE</b>	Realtek ALC671 5.1 Multichannel, High Definition Audio
<b>NETWORK CONNECTION</b>	<b>ETHERNET</b>	Intel® i219LM / Intel® i210 Ethernet Controller 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
<b>PERIPHERAL CONNECTION</b>	<b>USB</b>	2x USB 2.0 (by header), 6x USB 3.1 Gen1, 4x USB 3.1 Gen1 by header, 2x USB 3.1 Gen2 (ASMedia ASM1142)
	<b>SERIAL PORT</b>	1x RS232 (by header)
<b>STORAGE &amp; EXPANSION</b>	<b>SATA PCIe/PCI SLOTS</b>	8x SATA III 600 Interfaces (up to 6GBit/s, NCQ); AHCI; RAID 0/1/10 PCIe x16: 2x 16 Lanes Gen3 PCIe x8: 1x 8 Lanes, Gen3; 2x 4 Lanes, Gen3; 2x 1 Lane, Gen3
<b>POWER</b>	<b>CONNECTOR INPUT VOLTAGE</b>	24 Pin Power Connector + 8 Pin (12V) ATX Power Connector required Support for Soft-Off Power Supplies; 12V and 3.3V Supply Voltage on PCIe Slots 3.3 V Auxiliary Supply Voltage on PCIe Slots (Wake-Up Function) On board CPU high-efficiency CPU Voltage Regulator, 5 V / 2 A Auxiliary Power required for USB Wake-Up from Save-to-RAM, Save-to-Disk
<b>FIRMWARE</b>	<b>BIOS</b>	AMI Aptio 5.x (UEFI) BIOS modified and adapted by Fujitsu Technology Solutions; 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., Advanced Power Management, ACPI S3/S4, Wake on time from S5. Boot support for M.2 Carrier Board D3352-A (PCIe-based SSD modules, NVMe). BIOS integrated HW Diagnostic Tool Full supervision of BIOS POST and Boot sequence Integrated Trusted Platform Module TPM V2.0 (Infineon SLB9670)
	<b>WATCHDOG REAL TIME CLOCK TPM</b>	

## TECHNICAL INFORMATION

<b>SYSTEM CONTROL &amp; MONITORING</b>	<b>FP HEADER</b>	1x Header for Reset button, HDD LED & Internal Speaker
	<b>SECURITY</b>	1x Header for Power button, Power LED Recovery BIOS, System and BIOS Password, Boot Sequence Control, Serial/USB- Port Access Protection, Boot Sector Virus Warning, Write Protection for Flash BIOS, EraseDisk, Infineon Trusted Platform Module (TPM) V1.2-SLB9660 / V2.0-SLB9665.
<b>SOFTWARE</b>	<b>OS SUPPORT</b>	MS Windows 10-64, Linux-64
<b>MECHANICAL</b>	<b>DIMENSIONS (L x W)</b>	ATX: 12" x 9.6" (305 x 244 mm)
<b>ENVIRONMENTAL</b>	<b>OPERATION TEMPERATURE</b>	10 °C - 50 °C
<b>CERTIFICATION</b>	<b>EMC &amp; SAFETY</b>	cTÜVus possible upon request, CE Class B, FCC-B verified

## POWER SUPPLY REQUIREMENTS

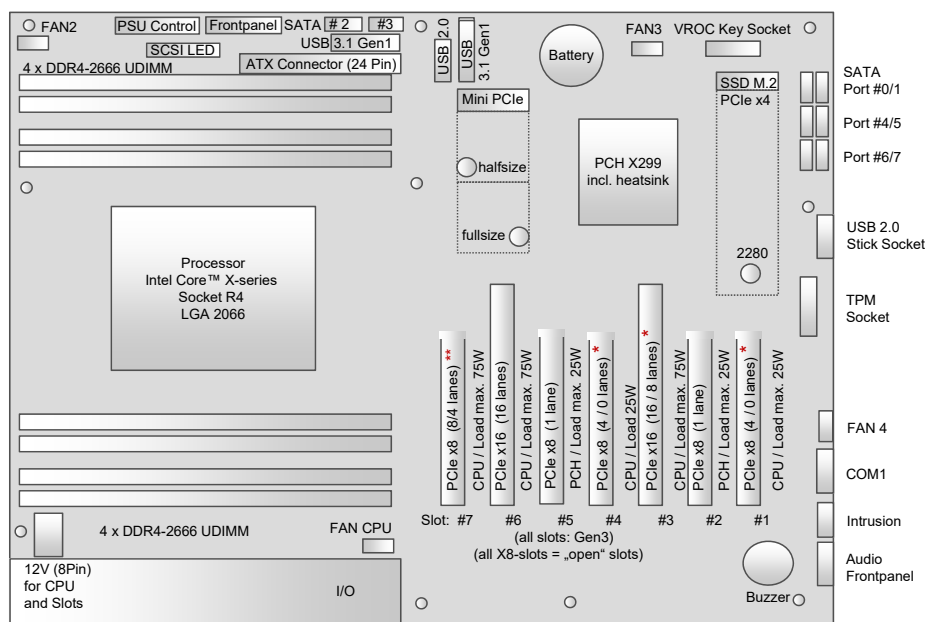
SOURCE	VOLTAGE	MIN. PS LOAD	MAX. VOLTAGE TOLERANCE	MOTHERBOARD CAPACITIVE LOAD	MOTHERBOARD MAX. CURRENT (continuous)
Main Power Supply	+ 12 V <sub>CPU</sub> (Rail#2)	0.05 A*	± 5 %	1.000 µF	~45 A*, **, ***
	+ 12 V <sub>CPU</sub> (Rail#3)	0.05 A*	± 5 %	1.000 µF	-
	+ 12 V <sub>SYS</sub> (Rail#1)	0.05 A*	± 5 %	1.000 µF	-
	- 12 V	0 A	-	-	-
	+ 5 V	0.05 A	± 5 %	2.200 µF	~28 A***
	+ 3.3 V	0.05 A	± 5 %	2.000 µF	~20 A***
Aux	+ 5 Vaux	0 A	+ 5 % / - 3 %	2.200 µF	~2 A***

\*) Combined load for all 12 V Rails.

\*\*) Thereof processor peak current up to 32 A (<250 ms)

\*\*\*) Depends on system configuration (Main focus: 12 V/3.3 V: PCIe Slots; 5 V: Memory/USB)

## CONNECTOR / SOCKET DIAGRAM



\* Reduced # of supported lanes for i7-78xxx processors only

\*\* 8 lanes supported by latest i9-109xxX processors only

## ▶ TECHNICAL INFORMATION

<b>FEATURES</b>	Board Size / Chipset Stereo Audio / 5.1 Multichannel Audio Buzzer / int. Speaker Support Dual LAN Gbit / 100 Mbit / 10 Mbit DASH / AoL / Boot / iAMT / vPro SATA / SATA RAID / eSATA Support / M.2 (PCIe x4) / NVME RAID (VROC) USB 2.0 / USB 3.1 Gen1 / USB 3.1 Gen2 / USB 3.1 Gen2 Type C FAN controlled & monitored PSU* / CPU / AUX1 / AUX2 / AUX3 TEMP monitored CPU / Onboard Sensors	ATX / Intel® X299 - / + + / + + / + / + - / - / + / - / - + / + / + / + / + + / + / + / + + / + / + / + / + + / +
<b>SPECIAL FEATURES</b>	Silent Fan / System Guard Recovery BIOS / Desk Update / Multi Boot HDD Password / USB Security** / EraseDisk Logo Boot Option BIOS POST- / BIOS Boot- / OS - HW Watchdog Operating Mode 24-7 / 8-5 (hrs per day - days per week) Motherboard operating temperature range (chassis inside) Support for additional M.2 SSD modules (via M.2 carrier board D3352)***	+ / + + / + / + + / + / + + + / + / + + / - 10 °C – 50 °C +
<b>INTERNAL CONNECTORS</b>	DIMM Sockets (UDIMM DDR4 2666/2933MHz) PCI Express® x16: 16lanes-gen3**** PCI Express® x8: 8 lanes-gen3 / 4 lanes-gen3 / 1 lane-gen3*** SATA (600) / SATA (300) / M.2 SSD S/PDIF / FireWire™ / Audio Input / Front Panel HD Audio (9-Pin) USB 2.0 channels / USB 3.1 Gen1 channels / USB 3.1 Gen2 channels / socket for USB 2.0 stick / USB 2.0 via Mini-PCIe socket Serial (FIFO, 16550 compatible) / SMBus Access***** FAN PSU* / CPU / AUX1 / AUX2 / AUX3 Intrusion (Case Open) Intel® VROC license dongle connector Parallel (EPP/ECP) Pin Connector Power 24 Pin (BTX) / 8 Pin (additional 12 V Supply)	8 2 1 / 2 / 2 8 / 0 / 1 - / - / - / 1 2 / 4 / 0 / 1 / 1  1 / 1 1 / 1 / 1 / 1 / 1 1 1 - 1 / 1
<b>EXTERNAL CONNECTORS</b>	Graphics Audio Mic. In / Line in / Line out LAN (RJ-45) / PS/2 Mouse / PS/2 Keyboard FireWire™ / Serial (RS232) / Parallel (EPP/ECP) USB 2.0 / USB 3.1 Gen1 / USB 3.1 Gen2 Type A / USB 3.1 Gen2 Type C	- 1 / 1 / 1 2 / 1 / 1 - / - / - - / 6 / 1 / 1

\*) Not supported by standard Power Supplies

\*\*\*) USB security not supported for ASMedia controller (= USB 3.1 Gen2 ports)

\*\*\*\*) D3352-G supports up to two carrier boards D3352-A2 (= max. 4x M.2 SSD modules)

\*\*\*\*\*) Reduced PCIe lane support for i7-78xx processors

\*\*\*\*\*) Specific SMBus connector for customized applications only

## ▶ ORDERING INFORMATION

ARTICLE	PART NO.	DESCRIPTION
D3598-G ATX	F5110-V173	Intel® Core™ i7-78xxX/-98xxX Processors Intel® Core™ i9-79xxX/-98xxX/-99xxX/-109xxX Processors, Intel® X299 Chipset
<b>ACCESSORIES</b>		
ADAPTER BOARD PCIe TO M.2	F5000-M3	for WiFi modules
SERIAL PORT CABLE	F5000-K005	ATX Slotbracket
M.2 CARRIER BOARD	F5000-M2	2x M.2
M.2 CARRIER BOARD	F5000-M1	1x M.2

## ▶ Global Headquarters

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