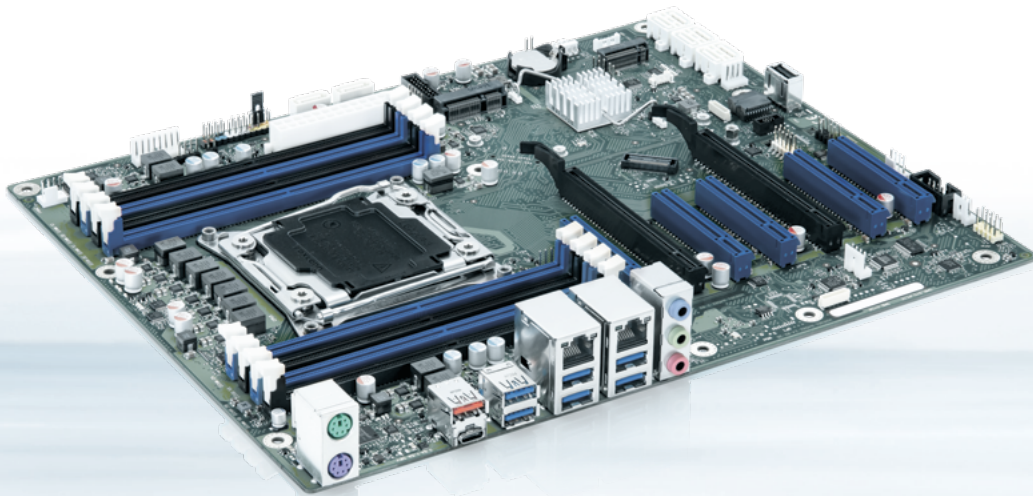


D3598-G ATX

Extended Lifecycle Series



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

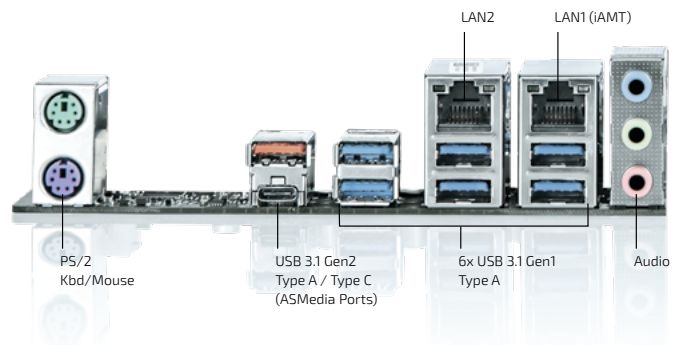
The Motherboard D3598-G ATX is the right choice for any demanding applications and needs. Featured by Intel® X299 Chipset, the D3598-G ATX supports the whole Intel® Core™-X-Processors Series. The perfect fit for any workstation and high performance

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

SYSTEM	PROCESSOR	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)
	CHIPSET MEMORY	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
VIDEO	GRAPHICS	-
AUDIO	AUDIO CODEC AUDIO INTERFACE	Realtek ALC671 5.1 Multichannel, High Definition Audio
NETWORK CONNECTION	ETHERNET	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
PERIPHERAL CONNECTION	USB	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)
	SERIAL PORT	1x RS232 (by header)
STORAGE & EXPANSION	SATA PCIe/PCI SLOTS	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
POWER	CONNECTOR INPUT VOLTAGE	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
FIRMWARE	BIOS	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; TCG compliant)
	WATCHDOG REAL TIME CLOCK TPM	

TECHNICAL INFORMATION

SYSTEM CONTROL	FP HEADER	1x Header for Reset button, HDD LED & internal Speaker
	SECURITY	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 V2.0)
SOFTWARE	OS SUPPORT	MS Windows 10-64, Linux-64
MECHANICAL	DIMENSIONS (L x W)	ATX: 12" x 9.6" (305 x 244 mm)
ENVIRONMENTAL	OPERATION TEMPERATURE	10 °C - 50 °C
CERTIFICATION	EMC & SAFETY	cTÜVus possible upon request, CE Class B, FCC-B verified

POWER SUPPLY REQUIREMENTS

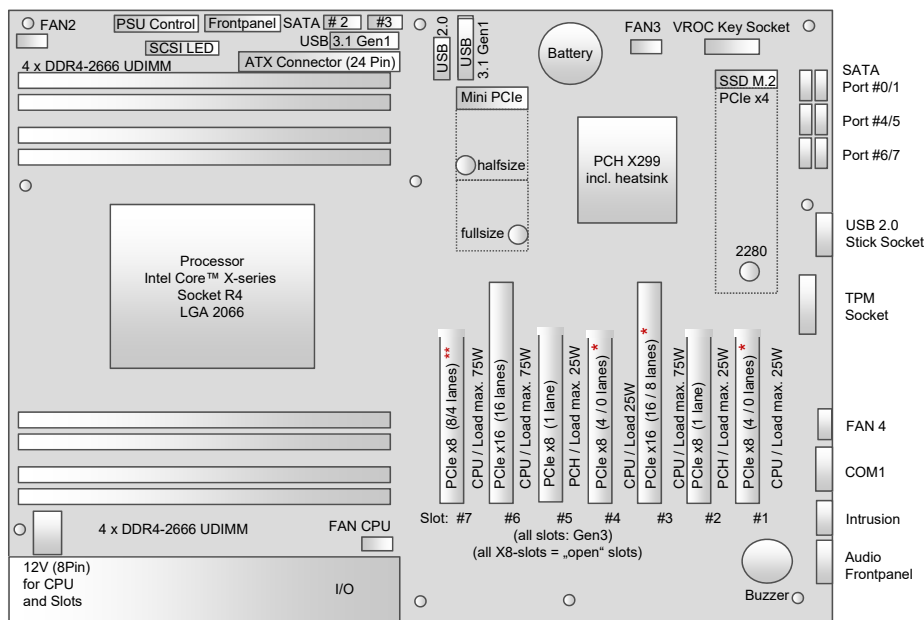
SOURCE	VOLTAGE	MIN. PS LOAD	MAX. VOLTAGE TOLERANCE	MOTHERBOARD CAPACITIVE LOAD	MOTHERBOARD MAX. CURRENT (continuous)
Main Power Supply	+ 12 V _{CPU} (Rail#2)	0.05 A*	± 5 %	1.000 µF	~45 A*, **, ***
	+ 12 V _{CPU} (Rail#3)	0.05 A*	± 5 %	1.000 µF	-
	+ 12 V _{SYS} (Rail#1)	0.05 A*	± 5 %	1.000 µF	-
	- 12 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

FEATURES	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 - / + + / + + / + / + - / - / + / - / - + / + / + / + / + + / + / + / + + / + / + / + / + + / +
SPECIAL FEATURES	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 +
INTERNAL CONNECTORS	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
EXTERNAL CONNECTORS	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)

****) D3598-G supports up to two carrier boards D3352-A2 (= max. 4x M.2 SSD modules)

*****) Reduced PCIe lane support for i7-78xxx 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
ACCESSORIES		
M.2 ADAPTER BOARD	F5000-M003	Adapter for Mini PCIe to M.2 Wi-Fi modules
SERIAL PORT CABLE	F5000-K005	ATX Slotbracket
M.2 CARRIER BOARD	F5000-M002	2x M.2
M.2 CARRIER BOARD	F5000-M001	1x M.2

▶ Global Headquarters

Kontron S&T AG

Lise-Meitner-Str. 3-5
86156 Augsburg, Germany
Tel.: + 49 821 4086 0
Fax: + 49 821 4086 111
info@kontron.com
www.kontron.com