

IMP-3724-R

Mini-PC Solution from Impact



Mini-STX Motherboard
D3714-R, D3714-V, D3724-R

FOR

Industrial chassis for enhanced operating temperature range

- Ultra-Compact Design
- 36 x 147 x 165 mm
- Front & Rear USB
- Horizontal or Vertical Operation
- VESA- and Wall Mount Option

kontron

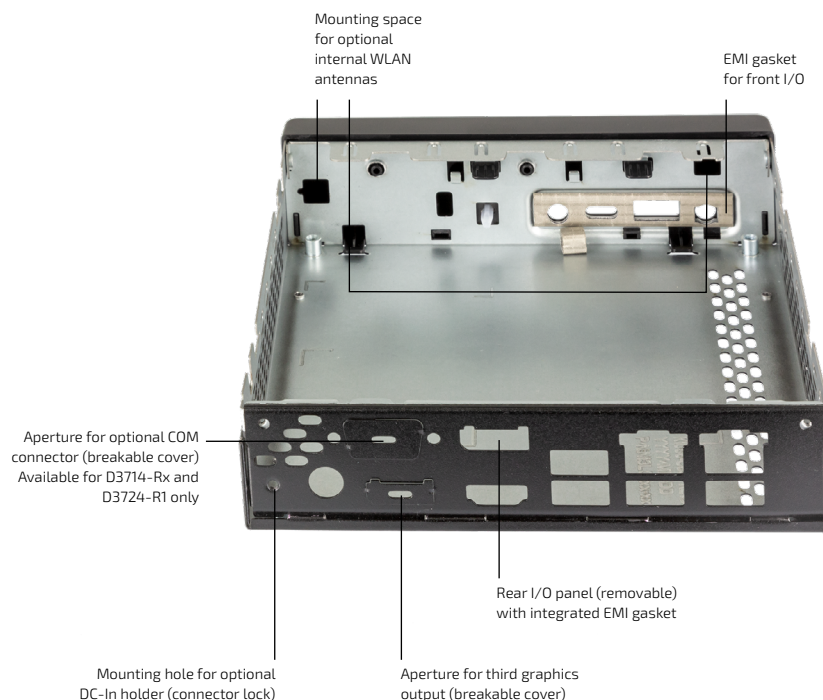
CHASSIS DATA	DIMENSIONS COLOUR WEIGHT	36 x 147 x 165 mm (W x H x D) black ~ 0.4 kg
ENVIRONMENTAL CONDITIONS	OPERATING TEMPERATURE*	Passive Cooling: -10 °C ... +35 °C (max. 8 W/10 W TDP, horizontal position) ** -10 °C ... +40 °C (max. 6 W TDP = D3714-R1, horizontal position) -10 °C ... +40 °C (max. 10 W TDP, vertical position only) *** Active Cooling: -10 °C ... +40 °C (up to 25 W TDP, any position) 5 % - 85 % relative humidity (non-condensing)
APPROVALS & CERTIFICATIONS	HUMIDITY	
PACKAGE CONTENT	EMC	CE Class B, Industrial Immunity (EN 61000-6-2), FCC Class B verified
CHASSIS FEATURES	THEFT PROTECTION MOUNTING OPTIONS	Chassis desk stand (vertical mode, removable) Rubber feet (horizontal mode, removable) Chassis bottom/top incl. front bezel; Rear I/O with integrated EMI gasket Kensington lock support Integrated WLAN antennas Wall Mount VESA Kit DC-in holder Cooling solution Rear COM port (incl. RS-232, RS-422, RS-485) ****
REQUIREMENTS FOR AC ADAPTER	SAFETY	Compliance with IEC 62368-1 according clause 6.2.2. to power source category PS2 ("Limited Power Source") required!

* Chassis ambient temperature; upper limit depends on system configuration

** Limited cooling performance in horizontal operating mode; possible system performance reduction. TDP setting ≤ 8W recommended

*** Vertical operating position recommended for most favorable cooling & system performance

**** Available for motherboard versions up to 3 rear graphics ports only



F5000-C022

- Specific passive heatsink designed for SMARTCASE™ S511
- Max. 10 W TDP
- Weight ~ 200 g



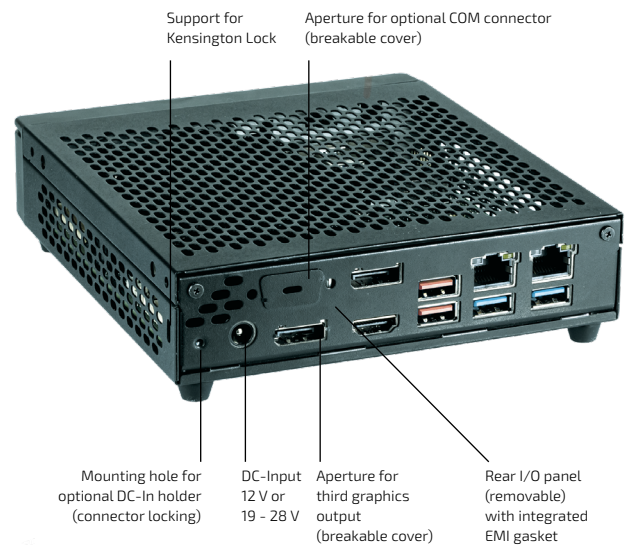
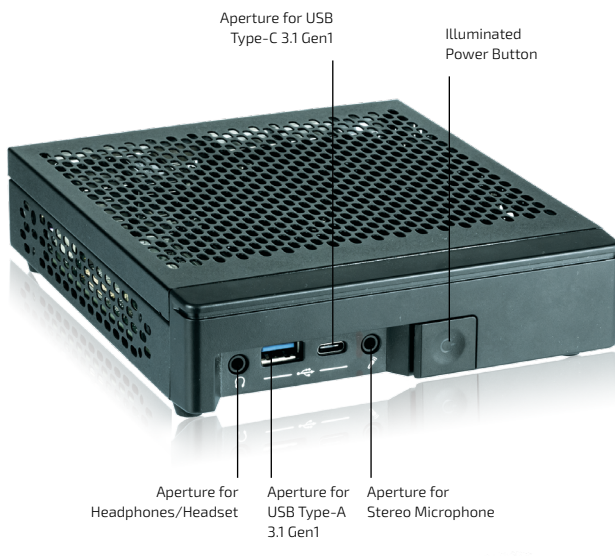
F5000-C023

- Specific active heatsink designed for SMARTCASE™ S511
- Max. 25 W TDP
- Weight ~ 200 g



Chassis Front/Rear View (Horizontal Position)

Motherboard D3714-R installed



Overview Chassis Configuration/Options

	D3714-R1	D3714-R2	D3714-V2	D3724-R1	D3724-R2	D3724-R3
SMARTCASE™ S511 Rev. 01	yes	yes	-	yes	-	-
SMARTCASE™ S511 Rev. 02	yes	yes	yes	yes	yes	yes
Chassis Rear Wall (up to 3 x Graphics + COM) included in chassis kit	yes	yes	-	yes	-	-
Specific Chassis Rear Wall (4 x Graphics) Included from SMARTCASE S511 Rev.02!	-	-	yes	-	yes	yes
Passive Cooling (F5000-C022) supported	yes	yes	-	-	-	-
Active Cooling (F5000-C023) supported	yes	yes	yes	yes	yes	yes
Rear COM Port Option S26361-F5000-K007 supported	yes	yes	-	yes	-	-

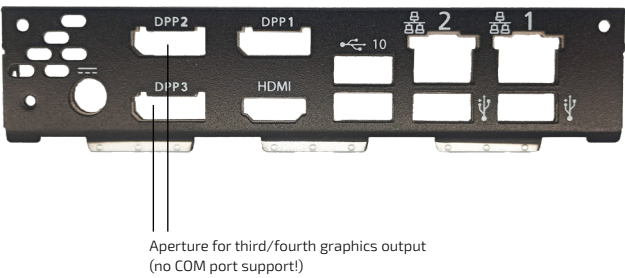
Following motherboard versions provide four rear graphics ports:

- D3714-V2
- D3724-R2
- D3724-R3

They require a different rear chassis wall for SC-S511.

This additional chassis wall (K-K1056-B622) is included from SMARTCASE™ S511 Rev. 02 chassis kit.

Furthermore, the chassis top cover had to be adjusted for assembly of the upper left graphics port. This change has also been implemented in SMARTCASE S511 chassis kit Rev. 02.



Ordering Information

ARTICLE	PART NO.	DESCRIPTION
SMARTCASE™ S511	F5000-J011*	10x chassis kit
CHASSIS REAR WALL (4x GRAPHICS PORT)	(K-K1056-B622)**	Mandatory for assembly of D3714-V2 or D3724-R2/-R3 in SC-S511 Rev.01 chassis
TOP COVER SC-S511 REV.B	(C26361-K1056-B51)**	Mandatory for assembly of D3714-V2 or D3724-R2/-R3 in SC-S511 Rev.01 chassis

Accessories

VESA MOUNTING KIT	S26361-F5000-X002	VESA adapter incl. mounting screws
AC ADAPTER 19V / 65W	S26361-F5000-P006	AC Adapter, 19 V/3.4 A, 65 W
INTERNAL WLAN ANTENNA KIT	S26361-F5000-W005	WLAN antenna kit; left (grey)/right (black) antennas incl. cable. M.2 WLAN module not included!
WALLMOUNT BRACKETS	S26361-F5000-X001	2x Brackets per chassis incl. screws
DC-IN HOLDER	S26361-F5000-X003	Holder incl. screws
HEATSINK	F5000-C022	Specific passive heatsink (max. 10 W TDP) for SMARTCASE™ S511
HEATSINK	F5000-C023	Specific active heatsink (max. 25 W TDP) for SMARTCASE™ S511
INTERNAL REAR COM PORT CABLE	S26361-F5000-K007	w/o slot bracket, length = 120 mm, 2 mm pitch internal connector

* Chassis Kit Rev. 01: Support for D3714-R1/-R2 and D3724-R1 only.
Chassis Kit Rev. 02: Top cover adjusted (= Rev. B) for additional support of D3714-V2 and D3724-R2/-R3, and (additional) appropriate chassis rear wall included. Rev. 02 replaces Rev. 01.
Chassis Kit Rev. 01 can be upgraded to Rev. 02 by replacing the chassis top cover by Rev. B top cover (C26361-K1056-B51) and adding the appropriate chassis rear wall (K-K1056-B622).

** Included in chassis kit Rev.02

Global Headquarters

Kontron Europe GmbH

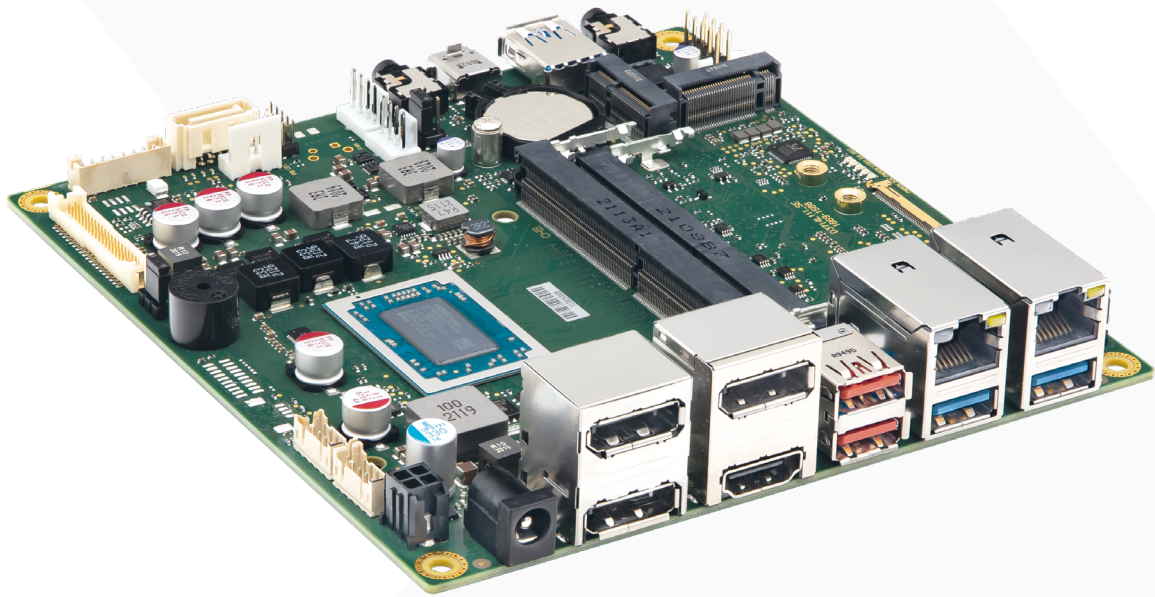
Gutenbergstraße 2
85737 Ismaning, Germany
Tel.: + 49 821 4086-0
info@kontron.com

www.kontron.com



D3724-R mSTX

Industrial Series



AMD Embedded R2000 Series SoC Platform for AMD FP5 SoC Processor

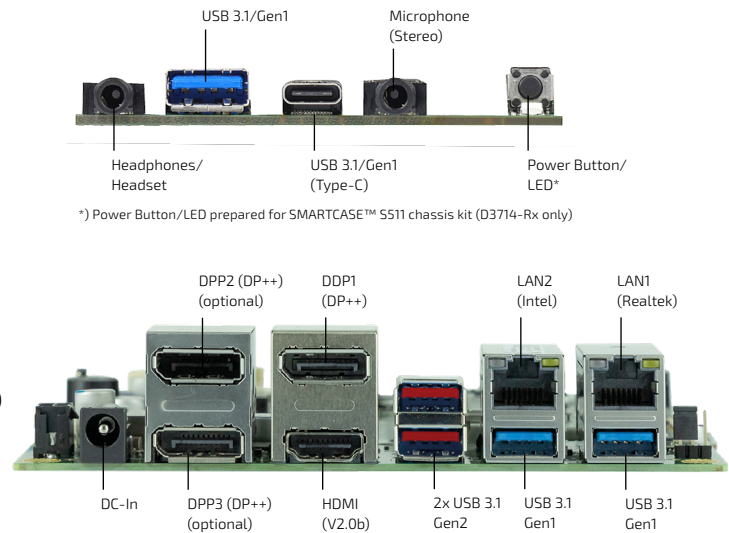
- AMD Radeon™ Vega Graphics (within SoC)
- Up to 3x DisplayPort V1.4 plus HDMI V2.0b
- Dual Channel LVDS (24 Bit) and eDP V1.3 (4 k) onboard
- Designed for Fanless Operation
- MS Windows 11 Support

D3724-R mSTX Industrial Series

The industrial motherboard D3724-R mSTX supports the AMD Ryzen™ Embedded R2000 series processors with integrated AMD Radeon™ Vega Graphics and can be used in applications with high graphical requirements like casino gaming, medical displays, thin clients and ultra small industrial PCs.

- AMD Radeon™ Vega Graphics (within SoC)
- Up to 3x DisplayPort V1.4 plus HDMI V2.0b
- Dual Channel LVDS (24Bit) and eDP V1.3 (4k) onboard
- 8 Bit GPIO & HD Audio onboard
- USB 2.0 and USB 3.1 (Gen1/Gen2) onboard
- 1x SATA III onboard
- Onboard support for 1x M.2 SSD (Key-M: 2230/2242/2280)
- Onboard support for 1x M.2 WLAN/Bluetooth (Key-E: 2230)
- Dual GbE LAN onboard incl. Teaming Support
- AMD integrated TPM V2.0 onboard
- Auto Dual Range internal/external DC Input (12 V or 19-28 V)
- HW Watchdog onboard
- RS-232/485/422 support onboard

It is equipped with up to three DisplayPorts, one HDMI Port, one embedded DisplayPort and one Dual-Channel LVDS (24bit) and powers up to four independent displays in 4K resolution. Depending on the requirements for (graphical) performance, there are 3 motherboard versions available.



Technical Information

SYSTEM	PROCESSOR	AMD Ryzen™ Embedded R2000 Series D3724-R3: AMD Embedded R2514 D3724-R2: AMD Embedded R2314 D3724-R1: AMD Embedded R2312
VIDEO	MEMORY	DDR4 2400/2666 SDRAM, Dual Channel 2x SO DIMM sockets, up to 32 GByte memory, ECC/non-ECC
	GRAPHICS	AMD Radeon™ Vega Graphics Up to 3x DPP V1.4 incl. DP++ support 1x HDMI V2.0b 1x embedded DP (eDP V1.4; supporting 4K resolutions; shared with DPP1) 1x Dual-Channel 24bit LVDS (shared with DPP3)
AUDIO	AUDIO CODEC AUDIO INTERFACE	Following max. display combinations are supported: D3724-R2/-R3: 1x DPP + HDMI + LVDS + eDP; 2x DPP + HDMI + LVDS; 2x DPP + HDMI + eDP; 3x DPP + HDMI D3724-R1: HDMI + LVDS + eDP; 1x DPP + HDMI + LVDS; 1x DPP + HDMI + eDP; 2x DPP + HDMI Realtek ALC256 High Definition Stereo Audio Codec front stereo microphone (2.5 mm jack) front headphones/headset (2.5 mm jack, CITA standard)
NETWORK CONNECTION	ETHERNET	Intel® i210 & Realtek RTL8111H 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), 2x USB 3.1 Gen1 (rear), 2x USB 3.1 Gen2 (rear), 1x USB 3.1 Gen1 (front), 1x USB 3.1 Gen1 (Type C, front)
	SERIAL PORT OTHER I/Os	1x RS232 (by header); 1x RS232/422/485 (by header) GPIO (by header)
STORAGE & EXPANSION	SATA	1x Serial ATA III 600 Interface (up to 6Gbit/s), NCQ, AHCI,
	PCIe/PCI SLOTS	1x M.2 PCIe x4 (Key-M: 2230/2242/2280) 1x M.2 WLAN/Bluetooth (Key-E: 2230, supports PCIe x1/Gen3 + USB 2.0)

POWER	CONNECTOR INPUT VOLTAGE	External/Internal DC-In (DC Jack/4-Pin Micro-Fit) DC Input 12 V or 19–28 V, max. 5 A/65 W (external DC-In), max. 10 A/100 W (internal DC-In)
FIRMWARE	BIOS	AMI Aptio 5.x (UEFI) BIOS modified and adapted by Kontron; Recovery BIOS, SM-BIOS (DMI), BIOS Update, Quick Boot, Logo Boot, Quiet Boot, Plug & Play, Automatic DRAM 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 SSD (NVME), Watchdog Support No legacy OS support, no MBR installation (UEFI only) 3 level HW Watchdog (BIOS POST/BIOS Boot/OS) Integrated AMD integrated TPM V2.0
SYSTEM CONTROL	WATCHDOG REAL TIME CLOCK TPM	
	FP HEADER	1x Header 2.0 mm pitch; for HDD LED, Power LED, and power button ("Reset" feature not supported) Onboard power button & power LED (for SMARTCASE™ S511 chassis)
	SECURITY	Recovery BIOS, System and BIOS Password, Boot Sequence Control, Serial-/USB-Port Access Protection, Write Protection for Flash BIOS, EraseDisk (BIOS Feature), AMD integrated TPM V2.0
COOLING	FAN SUPPORT	2x PWM fan (CPU/System)
SOFTWARE	OS SUPPORT	MS Windows 10 / MS Windows 11 Linux-64 No legacy OS support, no MBR installation (UEFI only)
MECHANICAL	DIMENSIONS (L x W)	Mini-STX: 5.5" x 5.8" (140 x 148 mm)
CERTIFICATION	EMC & SAFETY	CE Class-B, UKCA cTÜVus acc. IEC62368-1

Motherboard Versions

D3724	PROCESSOR (APU) *)	GRAPHICS RADEON™ VEGA	MAX. MEMORY SPEED
-R3	R2514 Quad-Core 2.1/3.7 GHz **) Supported TDP Limits: 25 W ***)/15 W/12 W	GPU @ 1.2 GHz 8x CU ****) up to 4 displays (eDP, LVDS, HDMI, DPP1, DPP2, DPP3)	DDR4-2666 Two sockets (ECC supported)
-R2	R2314 Quad-Core 2.1/3.5 GHz **) Supported TDP Limits: 25 W ***)/15 W/12 W	GPU @ 1.2 GHz 6x CU ****) up to 4 displays (eDP, LVDS, HDMI, DPP1, DPP2, DPP3)	DDR4-2666 Two sockets (ECC supported)
-R1	R2312 Dual-Core 2.7/3.5 GHz **) Supported TDP Limits: 25 W ***)/15 W/12 W	GPU @ 1.2 GHz 3x CU ****) up to 3 displays (eDP, LVDS, HDMI, DPP1, DPP3)	DDR4-2400 Two sockets (ECC supported)

*) APU = Accelerated Processing Unit

**) CPU Base Frequency / Boost Frequency

***) Default TDP (Note: D3724-R supports up to max. 25 W TDP)

****) CU = Compute Units

Power Supply Requirements

SOURCE	VOLTAGE RANGE	MIN. PS LOAD	MAX. VOLTAGE TOLERANCE	TYP. MOTHERBOARD INPUT POWER*	MAX. MOTHERBOARD INPUT POWER**
DC-IN (auto dual range)	12 V/19–28 V	0 A	12 V: +/- 10 %; 19–28 V: +10 %/-15 %	<10 W / <40 W	100 W (external or internal DC-In)

*) Motherboard incl. Memory and M.2 NVME SSD (approximations for MS Windows 10 Idle Mode / Full Processor Load @ 25 W TDP)

**) Motherboard incl. Memory, M.2, USB Devices, LVDS / eDP devices, SATA devices

See TechNotes document for detailed power requirements

FEATURES	Chipset / SoC (APU) DPP / HDMI / LVDS / eDP Buzzer / int. Speaker Support (stereo)* / 5.1 Multichannel Audio GbE LAN / Dual GbE LAN / 2.5GbE LAN / M.2 2230 WLAN-BT WoL / PXE / LAN Teaming / TSN SATA / SATA RAID / M.2 (SATA) / M.2 (PCIe/NVME) Mini-PCIe / USB 2.0 / USB 3.1 (Gen1) / USB 3.1 (Gen2) FAN monitored & controlled CPU / AUX1 / AUX2 TEMP monitored CPU / onboard sensors / external sensor	AMD Ryzen™ Embedded + / + / + / + + / + / - + / + / - / + + / + / + / - + / - / - / + - / + / + / + + / + / - + / + / -
SPECIAL FEATURES	COM interface support for RS-232 / RS-485 / RS-422 Silent Fan / System Guard Recovery BIOS / 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) Motherboard operating temperature range (chassis inside)**	+ + / + + / + + / + / + / - + / + / + + / - -10 °C ... +60 °C
INTERNAL CONNECTORS	SO DIMM Sockets (DDR4 2400) SATA-III / M.2 Key-M SSD / M.2 Key-B / M.2 2230 WLAN-BT / Mini-PCIe Front Panel Audio (9-Pin, HD Audio) / SP-DIF Out (Digital Audio) USB 2.0 pin header (provides 2 USB channel) / USB Stick socket USB 3.1 Gen1 pin header (provides 2 USB channels) Serial COM1 header / serial COM2 header LVDS / LVDS Backlight / Embedded DisplayPort @ 4 lanes CPU (PWM) / AUX1 (PWM) Intrusion (Case Open) / GPIO (8 Bit) / SMBus (Case Temp.) Stereo Speaker header / Digital Mic header Front Panel (Power Switch, LEDs, Intel 10 pin header, 2 mm pitch) *** SATA Drive Power Connector (5 V/12 V) / DC-In Connector 12 V/19-28 V (4 pin)	1 or 2 1 / 1 / - / 1 / - - / - 1 / - - 1 / 1 1 / 1 / 1 1 / 1 - / 1 / - 1 / - 1 1 / 1
EXTERNAL CONNECTORS	DisplayPort V1.4 / HDMI / DVI / VGA Audio Stereo Mic. In / Headphones (Headset) [Front Connectors] LAN (RJ-45) / PS/2 USB 2.0 / USB 3.1 Gen1 / USB 3.1 Gen2 USB 3.1 Gen1 Type-A / USB 3.1 Gen1-Type C [Front Connectors] DC-In connector (external input) 12 V/19-28 V @ 5 A max. Serial COM interface	up to 3 / 1 / - / - 1 / 1 2 / - 0 / 2 / 2 1 / 1 1 -

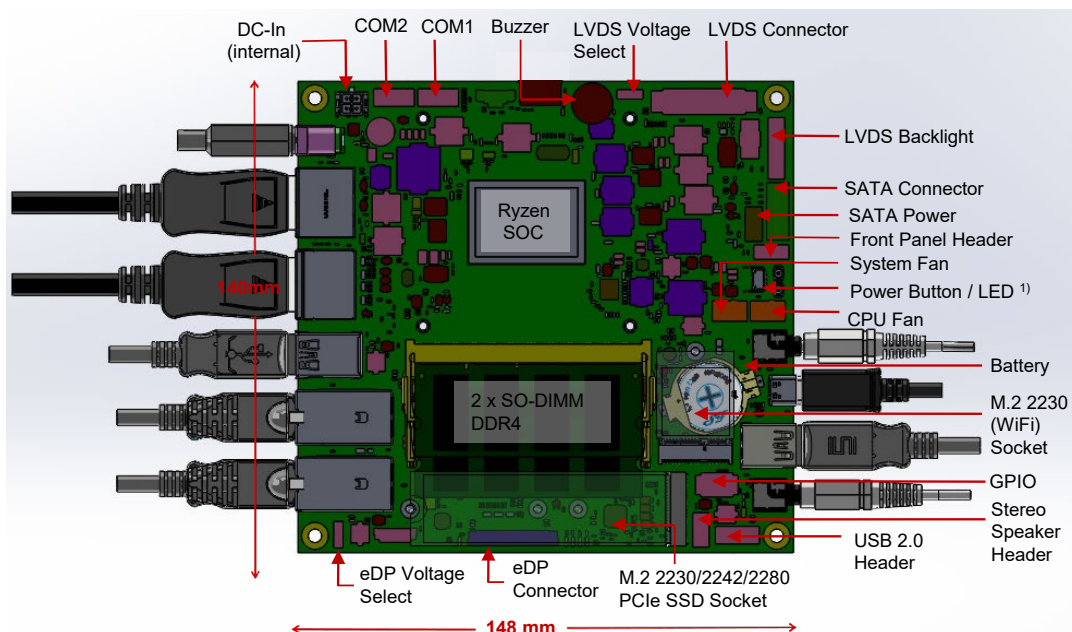
*) Stereo speaker support; 2 W @4Ω

**) Forced cooling required for high operating temperature range.

***) Reset switch not supported!

See TechNotes document for details

Connector/Socket Diagram



1) For SMARTCASE S511 chassis

Ordering Information

D3724-R mSTX

ARTICLE	PART NO.	DESCRIPTION
D3724-R3 mSTX	F5120-V205	AMD Embedded R2514 SoC
D3724-R2 mSTX	F5120-V204	AMD Embedded R2314 SoC
D3724-R1 mSTX	F5120-V203	AMD Embedded R2312 SoC

Accessories

SLIM ACTIVE HEATSINK + BACKPLATE	S26361-F5000-C021	max. 35 W TDP
FANLESS HEATSINK + BACKPLATE	F5000-C022	max. 10 W TDP, designed for SMARTCASE™ S511
EXTRA LOW ACTIVE HEATSINK + BACKPLATE	F5000-C023	max. 25 W TDP, designed for SMARTCASE™ S511
SMARTCASE™ S511*	F5000-J011	Chassis kit for D3714-Rx/-Vx and D3724-Rx, active or passive cooling
SERIAL PORT CABLE	S26361-F5000-K010	400 mm, fullsize slot bracket
SERIAL PORT CABLE	S26361-F5000-K007	Short cable (120 mm), w/o slot bracket
AC-ADAPTER 19V/65W	S26361-F5000-P006	For applications up to 25 W TDP (SoC)
DRIVE POWER CABLE	S26361-F5000-K001	400 mm, power connector for 1x SATA and 1x slimline DVD
WLAN ANTENNA KIT	S26361-F5000-W005	WLAN antenna kit; left (grey)/right (black) antennas incl. cable for SMARTCASE™ S500/S511/S520. M.2 WLAN module not included!
VESA MOUNT KIT	S26361-F5000-X002	Suitable for SMARTCASE™ S500/S511/S520
WALL MOUNT BRACKETS	S26361-F5000-X001	Suitable for SMARTCASE™ S500/S511/S520, 2x Brackets per chassis incl. screws
DC-IN CONNECTOR LOCK	S26361-F5000-X003	Suitable for SMARTCASE™ S500/S511/S520, fits to AC-Adapter F5000-P006

*) See SMARTCASE S511 datasheet regarding detailed requirements/limitations when using D3724-Rx motherboard series

Global Headquarters

Kontron Europe GmbH

Gutenbergstraße 2
85737 Ismaning, Germany
Tel.: + 49 821 4086-0
info@kontron.com

www.kontron.com

