Assembly Instructions

SMARTCASE™ S511 - Motherboard D3714-V/R & D3724-R

Version V1.1

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Contents

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SMARTCASE™ S511 Datasheet:

https://ftp.kontron.com/main.html?download&weblink=3cb83a90a99c51160d2aa1f1f34cc340&subfolder=Products/Accessories/SMARTCASE%5FChassis%2DKit%2DSolutions/SMARTCASE%5FS511&realfilename=DS%5FSMARTCASE%5FS511%2Epdf

SMARTCASE™ S511 PCN (Chassis Kit Rev. 01 → Rev. 02):

https://ftp.kontron.com/main.html?download&weblink=3cb83a90a99c51160d2aa1f1f34cc340&subfolder=Products/Accessories/SMARTCASE%5FChassis%2DKit%2DSolutions/SMARTCASE%5FS511&realfilename=PCN%5FSMARTCASE%2DS511%5FRev%2E02%5FQuad%2DGraphics%2DSupport%2Epdf

D3714-V/R Datasheet:

https://ftp.kontron.com/main.html?download&weblink=3cb83a90a99c51160d2aa1f1f34cc340&subfolder=Products/Motherboards/Industrial/D3714%5FD3724%5FMini%2DSTX/Documentation&realfilename=DS%5FD3714%5FmSTX%2Epdf

D3724-R Datasheet:

https://ftp.kontron.com/main.html?download&weblink=3cb83a90a99c51160d2aa1f1f34cc340&subfolder=Products/Motherboards/Industrial/D3714%5FD3724%5FMini%2DSTX/Documentation&realfilename=DS%5FD3724%2DR%5FmSTX%2Epdf

1. Delivery Kit & Accessories: Screw Overview

Assembly Screws

Type	Amount	Mandatory Assembly Torque	Note
M2.5 x 6mm	2	0.4Nm	for desk stand (vertical position) assembly (delivered in plastic bag)
	2	0.4Nm	for chassis rear cover (delivered in plastic bag)
M2.5 x 3mm	4	0.4Nm	Screws for optional wall mount bracket (included in wall mount kit F5000-X001)
M3 x 4.5mm	4	0.6Nm	for motherboard assembly (delivered in plastic bag)
M3 x 5mm	4	0.4Nm	for rubber feet (horizontal position) assembly (delivered in plastic bag)
M3 x 3.2mm	2	0.2Nm	Screw for M.2 SSD/WLAN module assembly (pre-installed on motherboard)
M3 x 3mm	1	0.3Nm	Hexagon bolt ("assembly nut") for M.2 SSD module assembly (pre-installed on motherboard)
COM screws UNC4-40	2	0.6Nm	Screw for optional COM cable (included in cable kit F5000-K005/-K010)

Note: Actual screw models may differ from pictures shown above!

Assembly note: The screws requiring 0.6Nm (e.g. motherboard assembly) are designed for using a hexagonal screwdriver. The additional cross recess is considered as backup only, e.g. for service purpose, if no hexagonal screwdriver is available.

2.   Preparing the Chassis

Open the chassis with two hands by putting some pressure on your thumbs to push the top cover reverse.

Top Cover

Rear Cover (K1056-B62x) with integrated EMI gasket
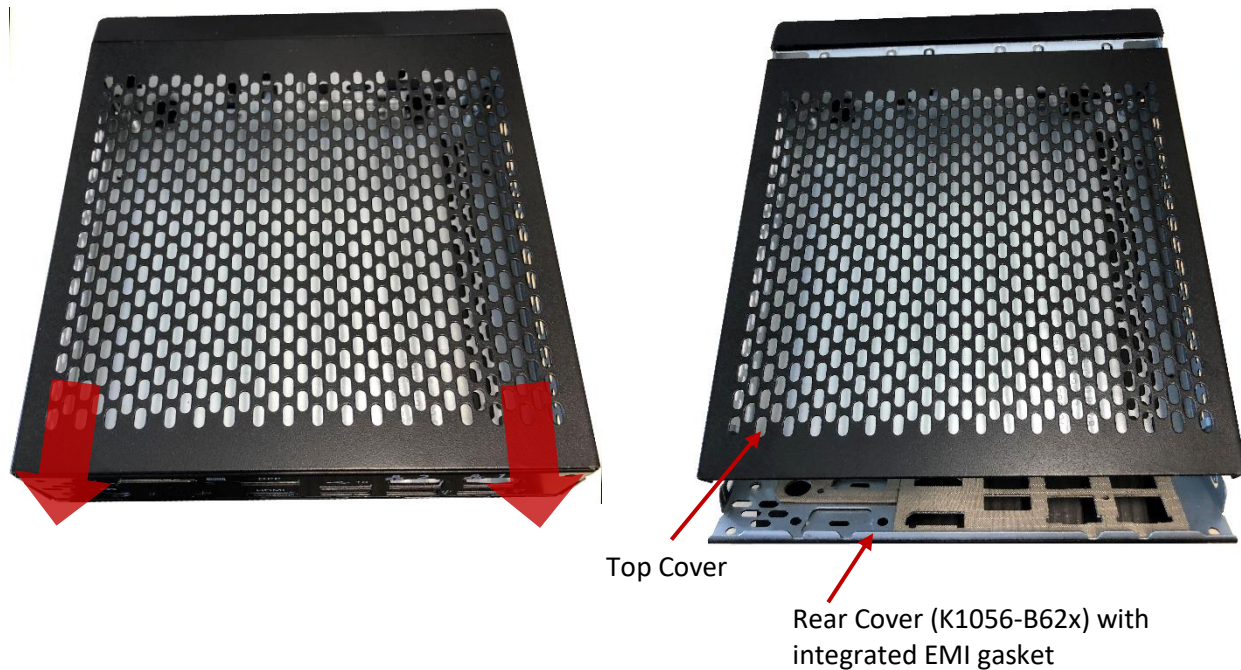
Remove top cover and unpack the accessories.

Note:
SMARTCASE™ S511 chassit kit **Rev.02** contains two different rear covers ("rear wall")

- K1056-B621: Supporting up to 3 x graphics and 1 x rear COM
- K1056-B622: Supporting 4 x graphics (no rear COM support)

See chapter 8. for details

Verify position of the additional small square **EMI Gasket** (position marker is located on chassis bottom)
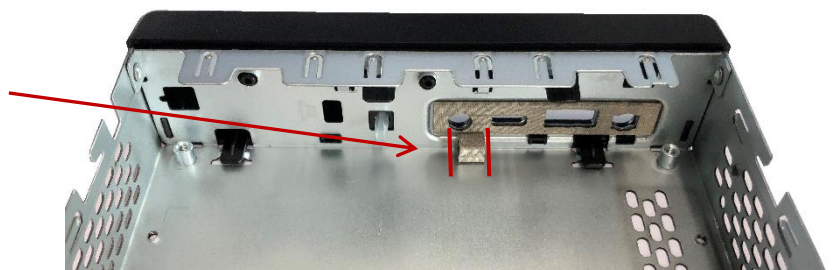
3.　Inserting additional Modules (Memory / M.2 / …)

Attention: Do not touch any pins! Touch the memory at the outer edges only.
Do not stick a barcode onto any modules!

The following procedure is recommended in order to ensure secure electrical contact:

1. First, insert the lower memory angular and pay attention to the notch!

2. Remove the memory again completely from the DIMM socket!

3. Insert memory again

4. Press down the memory until it fits

5. Do not press in the middle of the memory, but press down on the outer edges only

6. Install the upper memory (if available) in the same way as the lower one
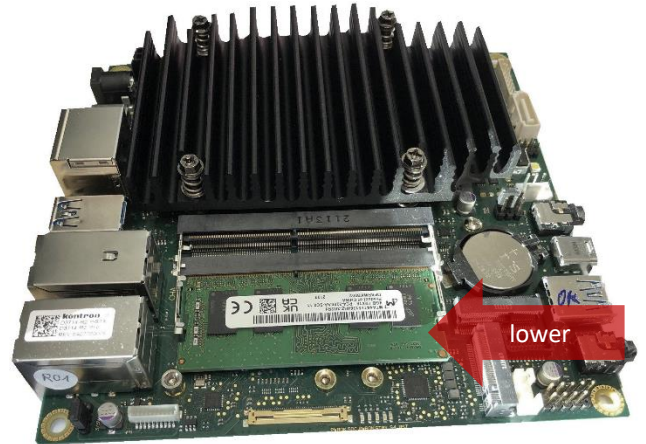
Note: D3714-R1 provides lower memory socket only!

M.2 Module Assembly (PCIe SSD / WLAN)

First, remove the M.2 mounting screws (for the M.2 Key M SSD and M.2 Key E WLAN/BT, the assembly nuts and screws are pre-installed).

.
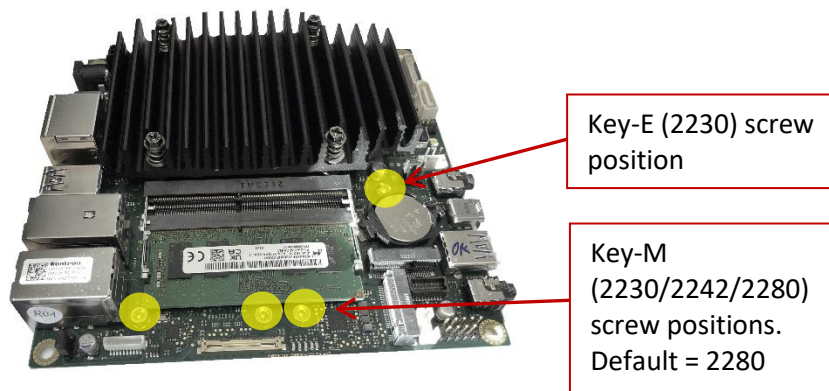
Key-E (2230) screw position

Key-M (2230/2242/2280) screw positions. Default = 2280

In order to use a different Key-M module size (2230 or 2242), the nut has to be removed first and installed to the desired position.
Insert M.2 modules angular into the socket (while paying attention to the coding / notch).
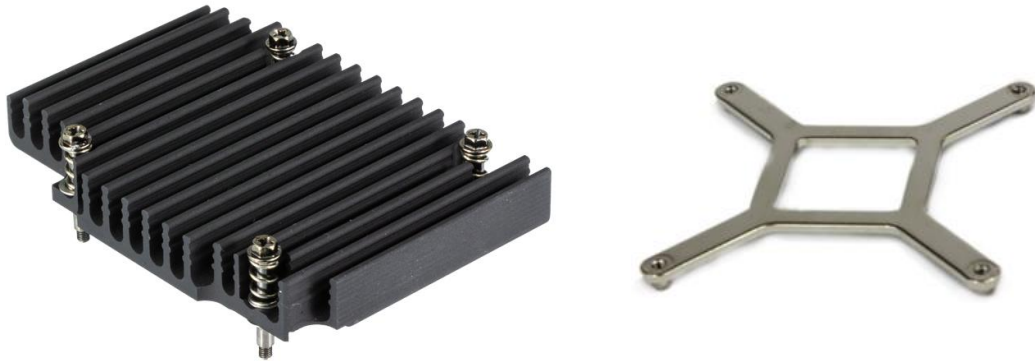Any modules have to be touched on the outer edges only.

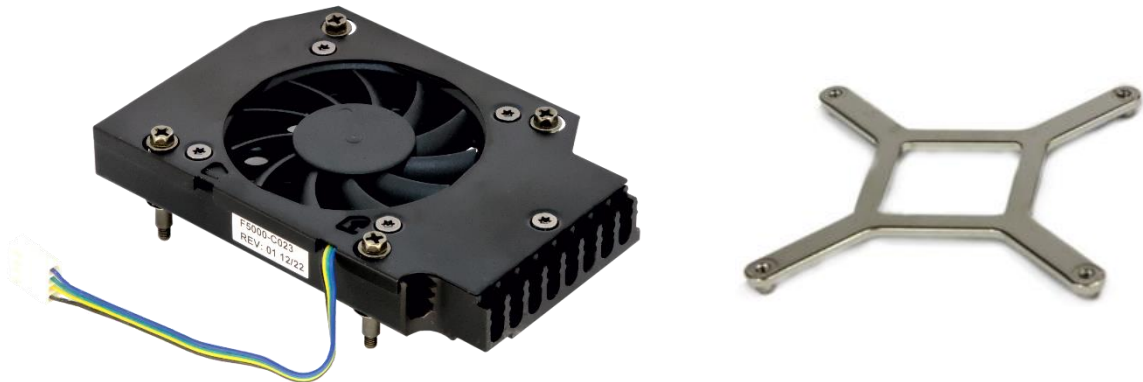Mandatory torque for the M.2 screw is 0.2Nm, and 0.3Nm for the Key-M nut.
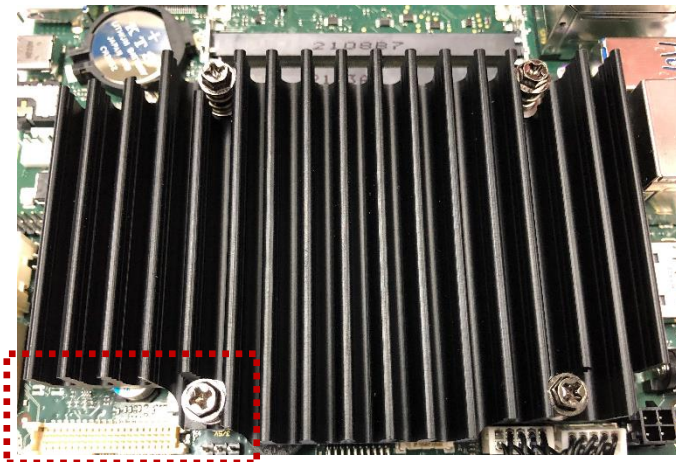
4. Heatsink Assembly

F5000-C022: Passive Cooler (up to 10W TDP) for SMARTCASE™ S511 incl. Mounting Backplate:

F5000-C023: Extra Low Active Cooler (up to 25W TDP) for SMARTCASE™ S511 incl. Mounting Backplate:

Heatsink Position on D3714 / D3724:



Big "cut area" located towards LVDS connector

Notes:
Recommended mounting torque for heatsink screws: 0.6Nm (max. 0.8Nm)
Do not remove the insulating foil of the backplate, otherwise the motherboard may be damaged due to possible short circuit.
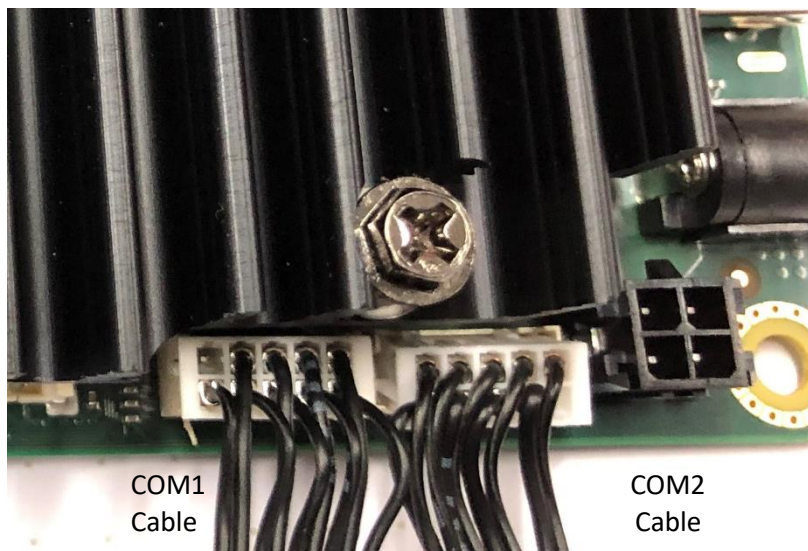
Important Heatsink Assembly Note

Due to space restrictions, some components (D3714 respectively D3724 bottom side) are located close to the mounting backplate.
Assembly of the backplate has to be handled with care in order not to damage/remove any component.
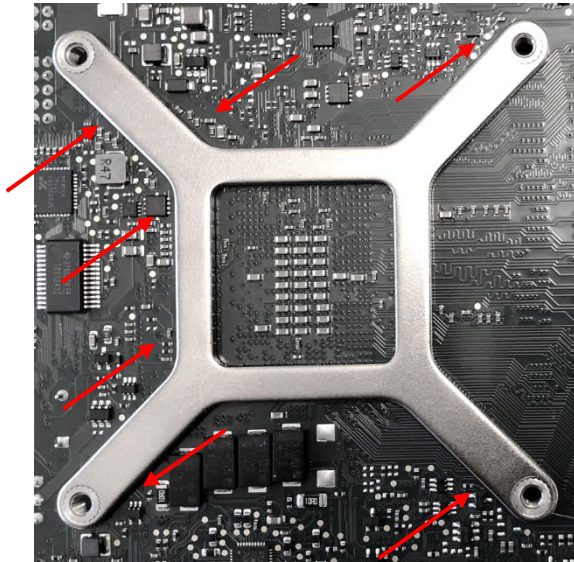
Furthermore, the internal COM port connectors had to be located close to the processor heatsink.
When using the COM ports respectively connecting the cable, it may be recommended to install the COM connector first before assembling the heatsink.
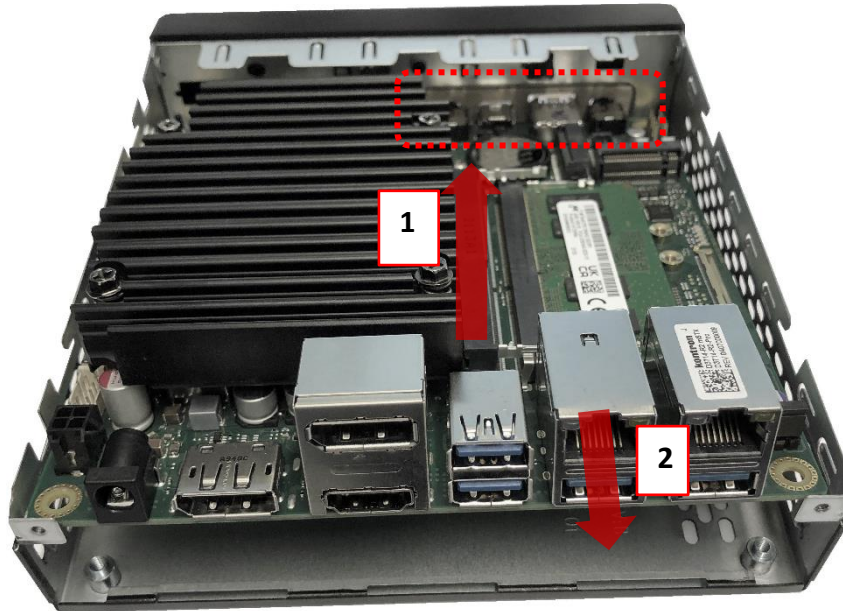

COM1
Cable

COM2
Cable

Note: COM1 = RS-232
COM2 = RS-232/-422/-485 (BIOS Setup options)

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5. Motherboard Assembly

Note: Before assembling the motherboard into the chassis, it is recommended to install the optional onboard components like heatsink, memory, M.2 modules, etc.

1. Slide in the motherboard carefully below the power button towards the front I/O apertures (red marking)

2. Move the motherboard <u>carefully</u> down to the final position

Take care that the front EMI gaskets stay in the correct position.

Push down the mainboard carefully while
the four mounting holes fit onto the chassis nuts.
Assemble the four screws (M3x4.5).
Mandatory torque = 0.6Nm
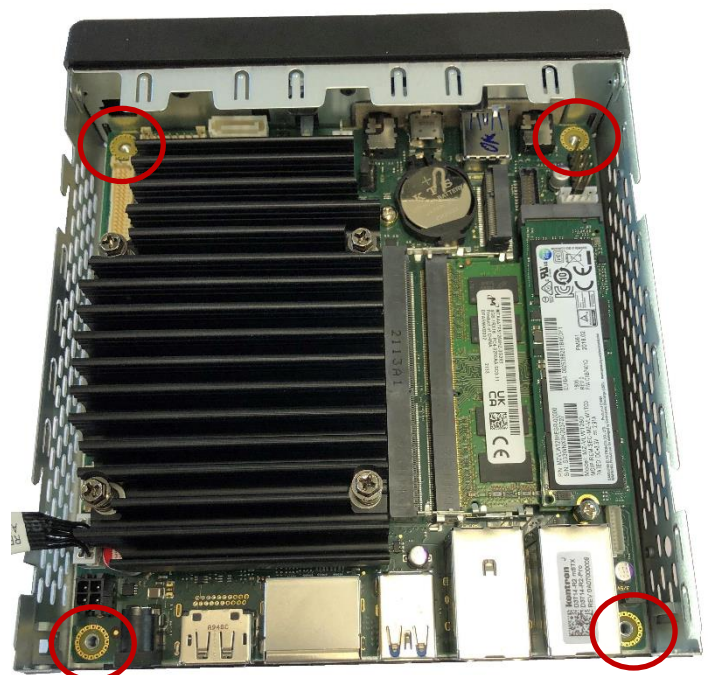
6. Installing WLAN Antennas (optional)

Please check the color-coding of the antennas. On the chassis front side the antenna bays are marked *black* respectively *gray*.

Please note that the plastic front bezel has to be removed first.

Push the antenna cables completely through the opening in the housing and pay attention to the antenna cable notch (see red circles).

Carefully install the WLAN antennas. The metal plate must not be bent.

Insert the black antenna cable in the hooks (see red circles), and then plug the black antenna cable to socket #1 of the M.2 WLAN module. Plug the gray antenna cable to socket #2.
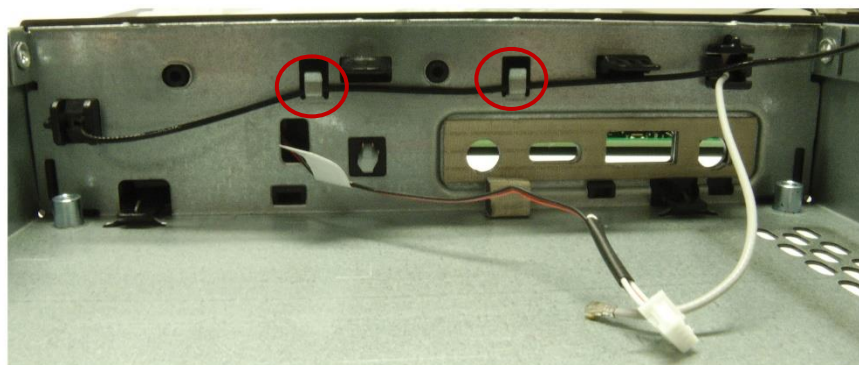
7. Installing COM Cable/Connector (optional)

COM cable F5000-K007

Note: SMARTCASE S511 provides rear COM port support for D3714-R1, D3714-R2, and D3724-R1 only due to limited space on rear wall!

Remove carefully COM metal cover first (use of screwdriver recommended).
SMARTCASE™ S511 provides the rear aperture for max. <u>one</u> COM port; the cable can be connected to either COM1 or COM2 connector of the motherboard D3714-R1/-R2 or D3724-R1.

COM1
Cable
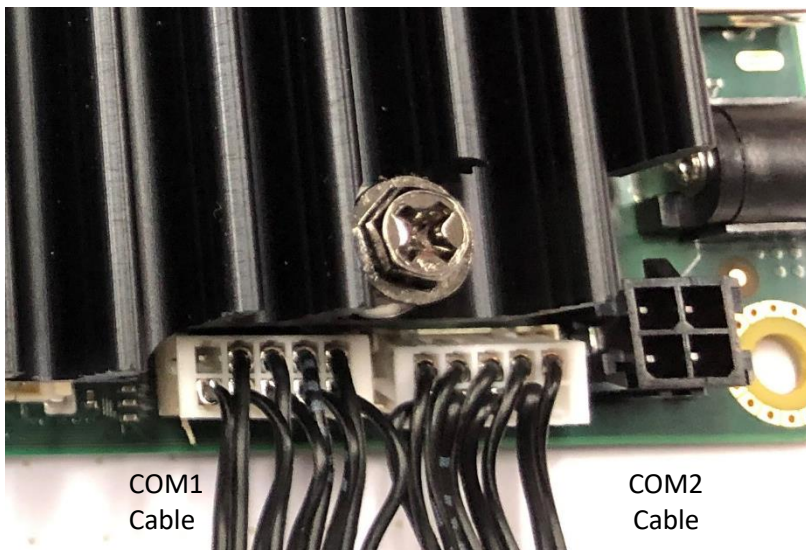
COM2
Cable

Note: COM1 = RS-232
      COM2 = RS-232/-422/-485 (BIOS Setup options)

Install the Sub-D connector of the cable to the chassis rear cover (specific COM screws UNC4-40).
Mandatory torque = 0.6Nm

8. Closing the Chassis
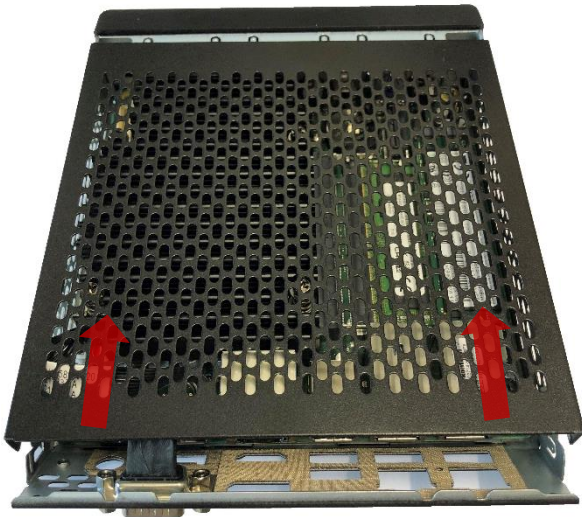
Slide the cover on top of the chassis while pushing it forward.
Some pressure may be required.

Note:
D3714-V2, **D3724-R2**, and **D3724-R3** require a different chassis rear wall supporting 4 x graphics port! Furthermore, the chassis top cover "Rev. B" is required, as this has been modified in order to avoid any mechanical interference with the upper left graphics port.
Chassis kit Rev. 02 contains both rear walls and chassis top cover Rev. B.

Chassis rear wall (K1056-B622) with 4 x graphics

Close the chassis rear wall using the screws (M2.5 x 6) included in the SMARTCASE chassis kit.
Mandatory torque: 0.4Nm

9.   Adding Stand / Rubber Feet

The chassis kit includes a desk stand for vertical use, and four rubber feet for horizontal use.

Assemble the two M2.5x6.0 screws (0.4Nm) for the desk stand (blue) or the four screws M3x5 (0.4Nm) for the rubber feet (red).

"Vertical Use" = Recommended Operating Position due to improved cooling performance

10. Adding Wall Mount Brackets (optional)

Kontron offers a "Wall Mount Kit" for SMARTCASE™ S5xx-series:
P/N = S26361-F5000-X001 (Kit includes two mounting brackets and four M2.5 mounting screws)

4 x mounting holes for wall mount brackets. Mandatory torque: 0.4Nm

// Sample Application

11. Active/Passive Cooling – Specific Details

See D3714/D3724 *TechNotes* document for details regarding TDP setting and processor temperature limiting.

SMARTCASE™ S511 operating conditions & related BIOS settings "Passive Cooling":

Note: Passive Cooling in SC-S511 chassis <u>not</u> supported for D3714-V2 and D3724-Rx!

Chassis Operating Mode	Motherboard Version	Ambient Temperature	CPU TDP	Enhanced Passive Cooling (BIOS Setup) [1]	CPU Temperature Limit (BIOS Setup) [2]	Recommended Operating Mode	Notes
(Desktop)	D3714-R1	max. 35°C	6W	disabled	--	√	
		max. 40°C		disabled	--	(√)	3)
	D3714-R2	max. 35°C	8W	disabled	--	√	
		max. 40°C		X	X	--	
		max. 35°C	10W	enabled	90°C	(√)	System performance reduction
		max. 40°C		X	X	--	
(Tower)	D3714-R1	max. 35°C	6W	disabled	--	√	
		max. 40°C		disabled	--	√	
	D3714-R2	max. 35°C	8W	disabled	--	√	
		max. 40°C		disabled	--	√	
		max. 35°C	10W	disabled	--	√	
		max. 40°C		enabled	90°C	(√)	3)

SMARTCASE™ S511 operating conditions & related BIOS settings "Active Cooling":

Chassis Operating Mode	Motherboard Version	Ambient Temperature	CPU TDP	Enhanced Passive Cooling (BIOS Setup) [1]	CPU Temperature Limit (BIOS Setup) [2]	Recommended Operating Mode	Notes
Desktop or Tower	D3714-V/R D3724-R	max. 40°C	up to 25W	disabled	--	√	

1) BIOS Setup → Advanced → CPU Configuration → Passive Cooling [disabled/enabled]
   Default setting: Passive Cooling = [disabled]
   Note: CPU Temperature Limit = 100°C if set to [disabled] (=AMD internal default)

2) BIOS Setup → Advanced → CPU Configuration → CPU Temperature Limit
   Possible range: 85°C … 90°C; Default setting: 90°C
   Note: "Passive Cooling" must be set to [enabled] in order to select/adjust temperature limit

3) Battery temperature may be > 60°C if M.2 WLAN module is installed

About Kontron

Kontron is a global leader in IoT/Embedded Computing Technology (ECT). Kontron offers individual solutions in the areas of Internet of Things (IoT) and Industry 4.0 through a combined portfolio of hardware, software and services. With its standard and customized products based on highly reliable state-of-the-art technologies, Kontron provides secure and innovative applications for a wide variety of industries. As a result, customers benefit from accelerated time-to-market, lower total cost of ownership, extended product lifecycles and the best fully integrated applications.

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