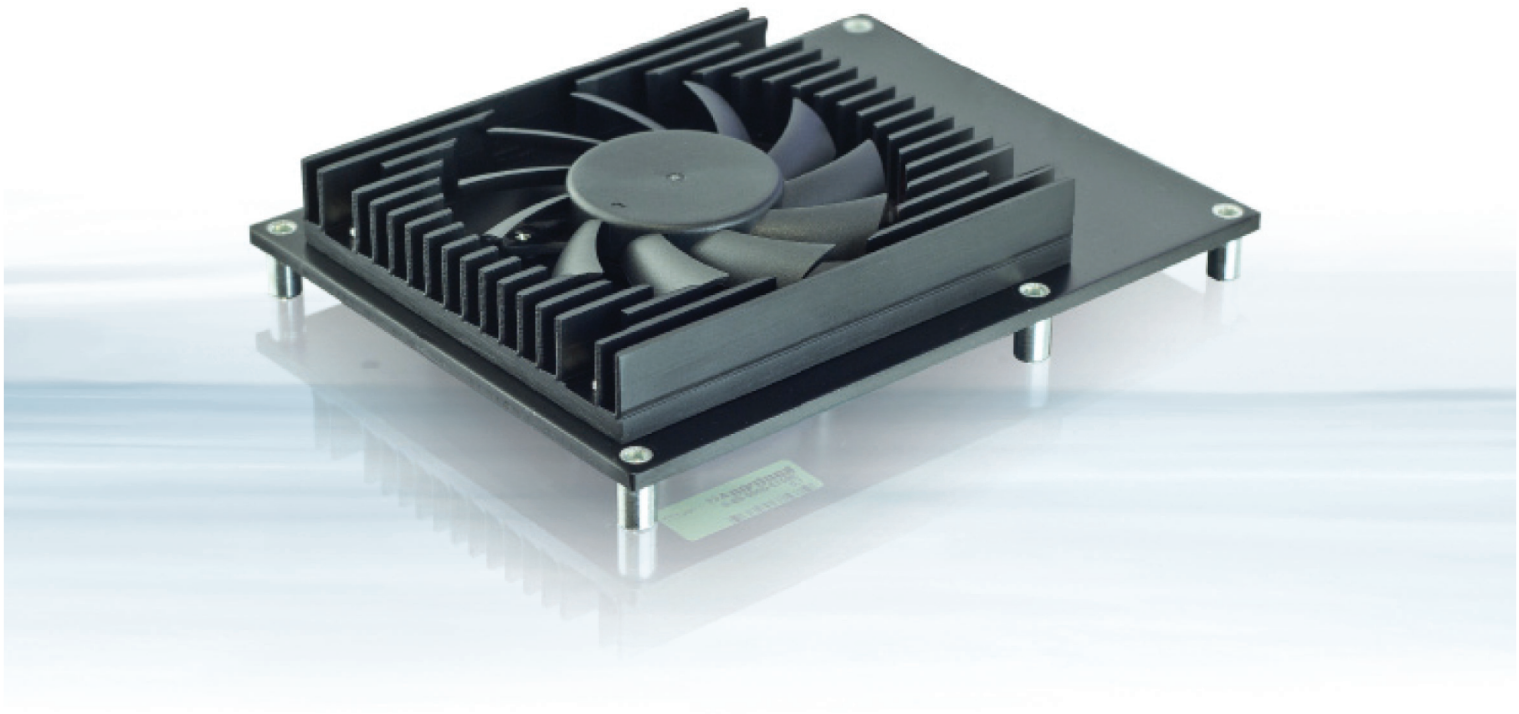
UNIVERSAL COOLING SOLUTIONS



UNIVERSAL COOLING SOLUTIONS FOR COM Express® AND ETX®

- Standardize cooling solution
- Price-efficient cooling solution for low power CPUs
- Simplify stock keeping and SKU administration

POSSIBILITIES START HERE kontron

UNIVERSAL COOLING SOLUTIONS FOR COM Express® AND ETX®

New: Uni Cooler

Kontron recently introduced further options for cooling solutions. The new Uni Cooler solution are constructed in a modular fashion and are designed for thermal heat dissipation for modules **up to 20 watts TDP maximum.**

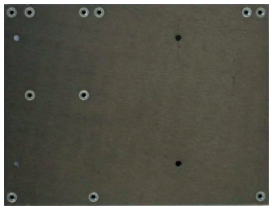
The Cooling Solution consists of an active (with fan) or passive (w/o fan) standardized cooling element which is mounted on top of the regular heatspreader.

Due to scale effects and usage of standardized products, Kontron's Uni Cooler solution offers on one hand significant price benefits and, on the other, optimization of your stock-keeping or SKU administration.

Uni Coolers are available for several COM Express® basic, compact, mini and ETX® products. COM Express® basic, compact and ETX® are mechanically the same Uni Cooler unit, but differ in the power supply voltage (COM Express® 12V, ETX® 5V). The Uni Cooler for COM Express® mini has smaller dimensions and uses a smaller connector for the power supply. Active Uni Coolers for the COM Express® mini can be connected directly to the fan pin-header which is populated on all Kontron's COM Express® mini modules.

Packaging

Uni Coolers are shipped without a heatspreader. Please order a heatspreader that mates to your selected Computer-on-Module. The Uni Cooler is shipped with thermal grease and screws to mount the Uni Cooler onto the regular heatspreader. Appropriate mounting holes are already drilled into the COM Express®



// Image 1:
Regular heatspreader

// Image 2:
Active Uni Cooler (with fan)

// Image 3:
Build a Cooling Solution:
Active Uni cooler mounted onto regular heatspreader

PRODUCT HIGHLIGHTS

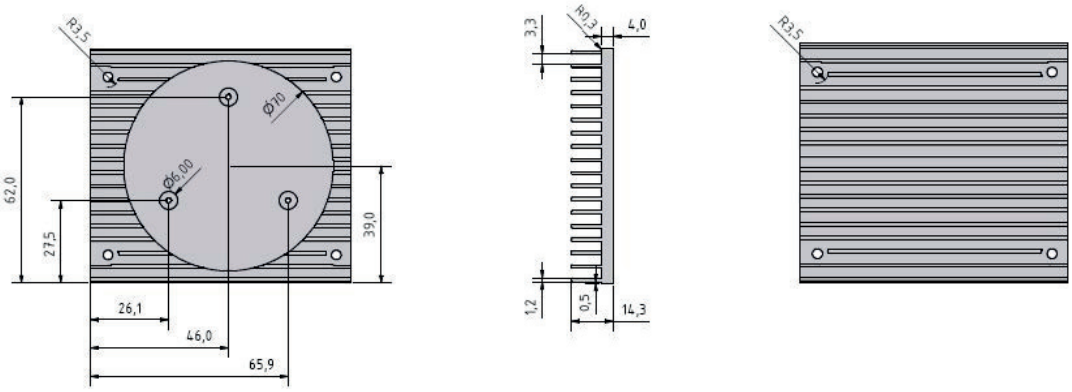
Please read the specific manual to find an overview table that lists all CPUs available including their TDPs. Select the most appropriate cooling solution accordingly.

Intel®	Core™	Core™	Core™	Core™	Core™	Core™	Celeron®	Celeron®	Celeron®	Celeron®
-	i7-2715QE	i7-2655LE	i7-2610UE	i5-2515E	i3-2310E	i3-2340UE	B810E	847E	827E	807UE
# of Cores	4	2	2	2	2	2	2	2	1	1
# of Threads	8	4	4	4	4	4	2	2	1	1
Clock Spead	2100MHz	2200MHz	1500MHz	2500MHz	2100MHz	1300MHz	1600MHz	1100MHz	1400MHz	1000MHz
Max Turbo Frequency	3000MHz	2900MHz	2400MHz	3100MHz	-	-	-	-	-	-
TDP	45W	25W	17W	35W	35W	17W	35W	17W	17W	10W
C-States	C0-C7	C0-C7	C0-C7	C0-C7	C0-C7	C0-C7	C0-C3	C0-C3	C0-C3	C0-C3
Smart Cache	6MB	4MB	4MB	3MB	3MB	3MB	2MB	2MB	1.5MB	1MB
Bus/Core Ratio	12-21	8-22	8-15	8-25	8-21	8-13	8-16	8-11	8-14	8-10
	DDR3-1066	DDR3-1066	DDR3-1066	DDR3-1066	DDR3-1066	DDR3-1066	DDR3-1066	DDR3-1066	DDR3-1066	DDR3-1066
			DDR3-1333	DDR3-1333	DDR3-1333	DDR3-1333	DDR3-1333			DDR3-1333
				16MB	16MB	16MB				

de.kontron.com

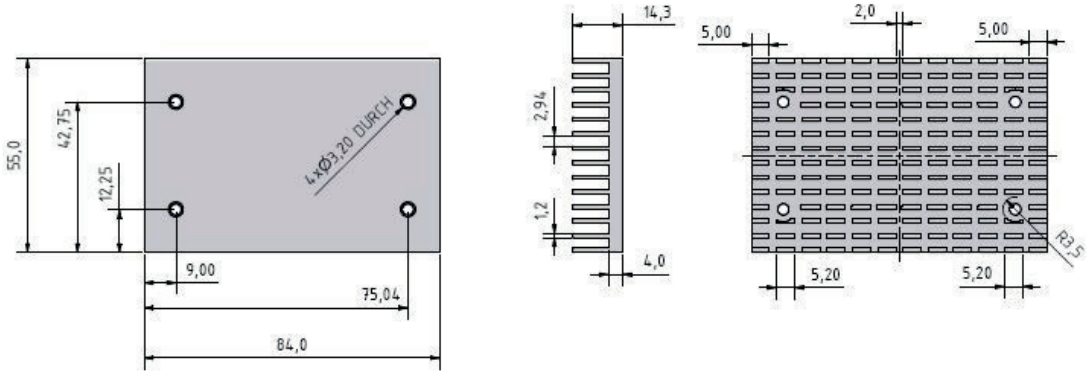
Table copied from COMe-bSC2 manual. Here you can detect how much TDP is generated by the various CPU versions.

TECHNICAL DRAWINGS - ETX® AND COM Express® basic, compact

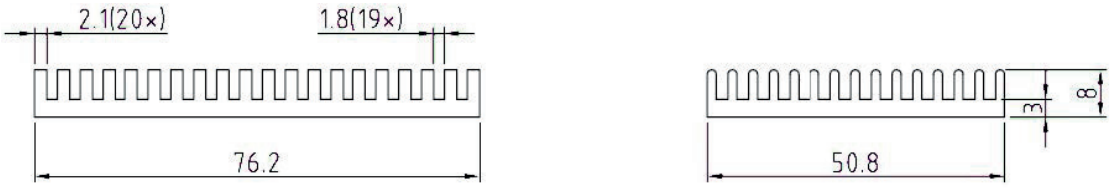


Note: ETX® and COM Express® Uni Coolers use different voltages for the fan.

TECHNICAL DRAWINGS - COM Express® mini



TECHNICAL DRAWINGS - COM Express® mini



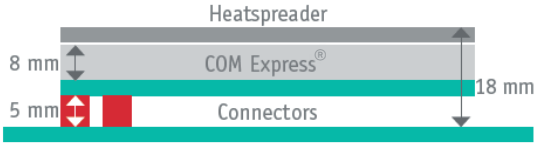
Note: The low profi le Uni Cooler for COM Express® mini has a height of just 8 mm instead of the 14.3 mm of the COM Express® basic, compact and ETX® Standard. Physical length and width are also slightly smaller.

HEATSPREADER AND HEATSINKS

Heatspreaders are plain metal plates which have on their underside COMspecific heat pads to attach to heat spots, for example in the CPU or chipset. Heat is dissipated and spread into the metal plate. The Uni Cooler can be mounted on top of the heatspreader and then results in a solution giving a heat dissipation of up to 20 W. Alternatively, the heatspreader can be attached to the housing. Depending on the housing configuration, a heat dissipation of more then 20 W may be possible. Please note that heatspreaders on their own are usually neither effective nor sufficient for cooling. Heatsinks are like heatspreaders, but with additional cooling fins and therefore form a cooling solution. Active heatsinks have a separate fan integrated; passive heatsinks are only fitted with fins and need a guaranteed air flow. Kontron's heatsinks are still available and are highly recommended for cooling of Computer-on-Modules with more than 20 W TDP of CPU.

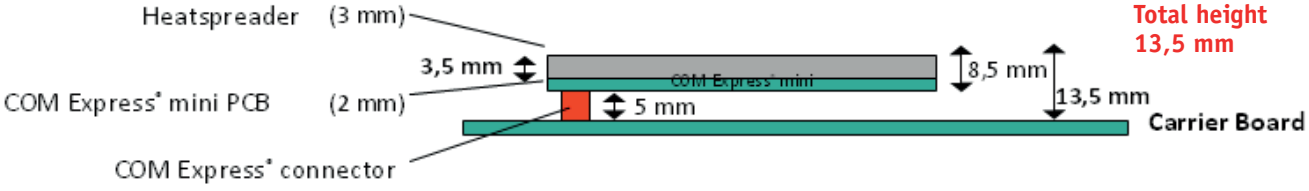
COM Express® HEATSPREADER

The COM Express® standard itself defines the heatspreader to ensure exchangeability of COM Express® Computer-on-Modules. They form a sound mechanical unit and have a defined surface for heat dissipation. Consequently, all COM Express® modules combined with the heatspreader have the same mechanical measurements.



COM Express® SLIM PROFILE HEATSPREADER

Specially developed for COM Express® mini designs the slim profile Heatspreader lower the total height of the cooling solution by 4.5 mm. The slim profile Heatspreader can be combined with all three COMe mini Uni Cooler solutions.



ORDERING INFORMATION

ARTICLE	PART NO.	DESCRIPTION
COME ACTIVE UNI COOLER	36099-0000-99-0	Active Uni Cooler w/ fan for Kontron COM Express® basic modules COMe-bSC#, COMe-bIP#, COMe-bPC2, COMe-bCD2 and compact modules COMe-cCT6, COMe-cPC2, COMe-cSP2 w/ max. 20 W TDP of CPU
COME PASSIVE UNI COOLER	36099-0000-99-1	Passive Uni Cooler w/o fan for Kontron COM Express® basic modules COMe-bSC#, COMe-bIP#, COMe-bPC2, COMe-bCD2 and compact modules COMe-cCT6, COMe-cPC2, COMe-cSP2 w/ max. 10 W TDP of CPU
COME MINI ACTIVE UNI COOLER	34099-0000-99-0	Active Uni Cooler w/ fan for all Kontron COM Express® mini max. 10 W TDP of CPU
COME MINI PASSIVE UNI COOLER	34099-0000-99-1	Passive Uni Cooler w/o fan for all Kontron COM Express® mini max 5 W TDP of CPU
COME MINI PASSIVE UNI COOLER SLIM	34099-0000-99-2	Passive Uni Cooler w/o fan, low profi le (height of just 8mm instead of 14.3 mm) for all Kontron COM Express® mini max 5 W TDP of CPU
ETX® ACTIVE UNI COOLER	18099-0000-99-0	Active Uni Cooler w/ fan for Kontron ETX®-OH

CORPORATE OFFICES

EUROPE, MIDDLE EAST & AFRICA

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

NORTH AMERICA

14118 Stowe Drive
Poway, CA 92064-7147
USA
Tel.: + 1 888 294 4558
Fax: + 1 858 677 0898
info@us.kontron.com

ASIA PACIFIC

1~2F, 10 Building, No. 8 Liangshuihe 2nd Street,
Economical & Technological Development Zone,
Beijing, 100176, P.R.China
Tel.: +86 10 63751188
Fax: +86 10 83682438
info@kontron.cn

Copyright © 2017 Kontron AG. All rights reserved. All data is for information purposes only and not guaranteed for legal purposes. Information has been carefully checked and is believed to be accurate; however, no responsibility is assumed for inaccuracies. Kontron and the Kontron logo and all other trademarks or registered trademarks are the property of their respective owners and are recognized. Specifications are subject to change without notice. Universal Cooling Solutions-20170518 - WMH