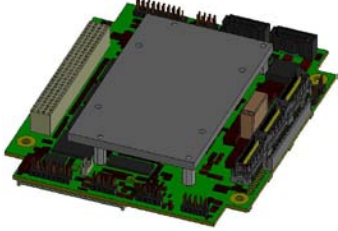
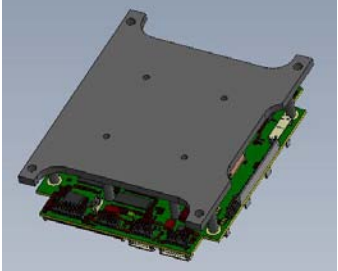


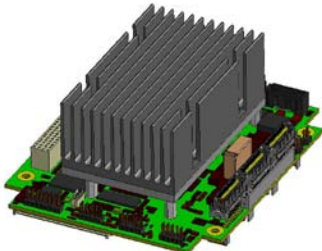
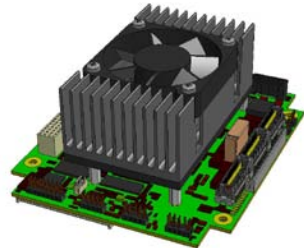
Concerned Versions:

All versions of the Cool XpressRunner GS45

Description:

 This application note describes the available heat sink solutions for the Cool XpressRunner GS45 in commercial and industrial temperature range. For detailed drawings or 3D files please contact our support helpdesk@lippertembedded.com
Solutions:

Heat Sink Type	Part Number	Suitable for CPU / Temperature Range	Suitable for CXR-GS45 part numbers	Remarks	Measurements (l x w x h) / weight	Picture
Heat spreader	765-0022-10	all CPU types / all temperature ranges	On customer request only; please add the part number on your order	Additional cooling is necessary by mounting the heat spreader to a metal enclosure or by mounting an extra heat sink or heat pipe on the heat spreader.	measurements approx. 80 x 50 x 3 mm / weight CPU and heat sink approx. 240 gr.	
Wall mount adapter	765-0036-10	all CPU types / all temperature ranges	On customer request only; please add the part number on your order	Additional cooling is necessary by mounting the adapter to a metal enclosure.	measurements approx. 96 x 116 x 4 mm / total height above top of board approx. 20.5 mm weight CPU and heat sink approx. 300 gr.	

Heat Sink Type	Part Number	Suitable for CPU / Temperature Range	Suitable for CXR-GS45 part numbers	Remarks	Measurements (l x w x h) / weight	Picture
Passive cooler	765-0023-10	Intel Celeron M 722 1.2 GHz / Commercial temperature range 0°C to 60°C Industrial temperature range -20°C to 60°C	712-0001-10 812-0001-10	CXR-GS45 must be on top of PC/104 Express stack. The size of the heat sink is designed to fulfill requirements of the commercial and industrial temperature range without additional cooling.	measurements approx. 80 x 50 x 33 mm / weight CPU and heat sink approx. 370 gr.	
Active cooler	765-0023-11	Intel Core 2 Duo SP9300 2.26 GHz / Commercial temperature range 0°C to 60°C Industrial temperature range -20°C to 60°C	712-0004-10 812-0004-10	CXR-GS45 must be on top of PC/104 Express stack. The size of the heat sink is designed to fulfill requirements of the commercial and industrial temperature range without additional cooling.	measurements approx. 80x 50 x 33 mm / weight CPU and heat sink approx. 380 gr.	

Remarks:

- All heat sinks are mounted with 8 mm spacers. Add 8 mm to the measurements for the total height above the CPU board.
- All heat sinks are mounted without occupying the normal PC/104 mounting holes
- The CPU temperature may never exceed 100°C