

Midget – The Power of Smallness

Together with industry partners the institute of electronics (IfE) developed the smallest and most powerful integrated PC for various applications.



Motivation

The Institute of Electronic (IfE) developed in a prior project successfully the PICit Camera with an integrated PC for Brunner Elektronik AG. The computer power in this camera was then taken from a third party. Brunner wanted to replace the third party PC module in the camera with a module consisting of the latest PC chipset. With this module they are able to get more computer power for future image processing application.

The IfE realized this project together with the HTA spin-off company Toradex AG. Out of this project – the world smallest Intel® Pentium® M module was developed – Midget.

Description

The Midget module provides latest PC technology for industrial applications. Midget consists of an Intel® Pentium® M CPU with Intel 915 chipset and can be assembled with up to 2 GB DDR2 RAM. All components are selected from the embedded mobile line with the lowest possible power consumption. The layout of Midget is placed on a 16 layer print and gives Midget the small dimensions of 95 x 70 x 17mm. The interfaces PCI Express, USB, Serial ATA, Parallel ATA and VGA are concentrated on a single 180 pin module connector. As an option, there is an additional 60 pin connector containing standard legacy interfaces.

Since temperature is a critical aspect when using high performance PCs, thermal simulations for the routing and mechanical design were done at the beginning of the design cycle to optimize the heat dissipation of the module. The fan-less design of Midget guarantees a silent and reliable operation.

Midget's modularity, the big availability of interfaces and its easy adaptation make Midget the ideal high PC power module for different applications in industrial products.

Results

The IfE together with its industry partners realized successfully the world's smallest PC module based on Intel Pentium® M CPU. Due to the knowledge in hardware design, mechanical assembling and thermal simulation, within short time this powerful product was successfully designed.

Project Midget

Industry Partners:
Brunner Elektronik AG, CH-Hittnau

www.brunner-elektronik.ch

Toradex AG, CH-Horw
www.toradex.com

Project Duration

Project Budget

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