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## Fanless, flexible Core Duo Power package The solution for rugged applications and long-term projects

1997, MPL introduced the PIP5 (5x86 solution), one of the first Packaged Industrial PC on the market. Now 10 years later, MPL introduces the PIP20 (Core Duo solution) with the same mechanical dimension as the PIP5.

The new powerful and versatile embedded PC is the universal platform for applications that require a product that is long-term available, reliable, rugged, and with low cost of owner ship. The PIP20 is equipped with a low power Intel Core Duo processor L2400 out of the embedded roadmap of Intel. The PIP20 is specifically designed to withstand extreme conditions (cold, heat, dust, shock, vibrations, maintenance-free, unmanned, ...), therefore it still can be operated as a common PC. The main difference to other Industrial PCs is the design and construction of the PCB, the on-board EMI/RFI protection, the versatile housing, the selection of long-term available components, and the availability of extended temperature.



Unrivaled is the on-board soldered SDRAM next to the additional memory socket for up to 3GB SDRAM. Furthermore the CPU is soldered directly on-board, mainly to increase the MTBF value of the system.

The PIP20 solution offers features like FireWire, USB2.0, 10/100/1000 Ethernet, and serial ports (RS232/433/485). All available on standard connectors. Further a powerful 3D graphics engine is integrated as well. The PIP20 is ready for any mass storage devices with PATA or SATA interface. Within the package, the solution can easily be expanded with Audio, CAN, digital & analog I/Os, UPS, WLAN, GPRS, UMTS, ....

Unlike any other PC on the market, the PIP Family is extremely flexible. There are several housings (IP51 & IP67) in different colors available. The solution is expandable over its internal expansion buses (PC/104-Plus, PMC, PCI, PCI-Express Minicard), allowing to add any required additional functionality even for single quantities.

The Thermal Design Power (TDP) of the PIP20 solution is done in such a way that it can be operated at maximum CPU load from -40°C up to +75°C ambient temperature. This wide temperature range is reached without CPU de-rating, the need of a fan, or special openings.

The PIP20 power consumption is typically 28W. The unit can be supplied with an input voltage between 8 - 28VDC (optional up to 48VDC).

The product is well suited for any application, whether it's being used for hospitals, defense, automation, or mobile applications. The solution can be assembled according to the customer's requirements and needs, OEM and depopulated versions are offered as well.

The quality design and manufacturing of the PIP is 100% being done at MPL in Switzerland. A product which is practical and multifunctional like a Swiss army knife!

For more information about the fanless Core Duo and the PIP Concept, please contact us via fax, email, or check out our homepage ([www.mpl.ch](http://www.mpl.ch)).