



WIN Enterprises
WHITE PAPER

**The Converged
Application
Platform**



www.win-ent.com

The Converged Application Platform

On September 12, 2006 WIN Enterprises, Inc., a manufacturer of embedded controllers and networking platforms for OEMs announced the PL-10260 WIN CAP, a Converged Application Platform for IP PBX and other converged applications. The 1U appliance was the result of a reference design project awarded to WIN Enterprises by Intel. The design used standards-based Intel® building blocks and a unique Intel Architecture (IA) and network processor architecture.

WIN CAP is a scalable solution that when used as an IP PBX platform can service as few as 8 or as many as 120 business or residential users. The standards-based architecture consists of an Intel® Pentium M and an Intel® IXP 465 Network Processor. Integrators can use licensable software technology and development tools to provide a feature-rich, economical solution.

The 1U rack-mount device provides a relatively small footprint that integrates a breadth of networking devices that could normally fill an equipment closet:

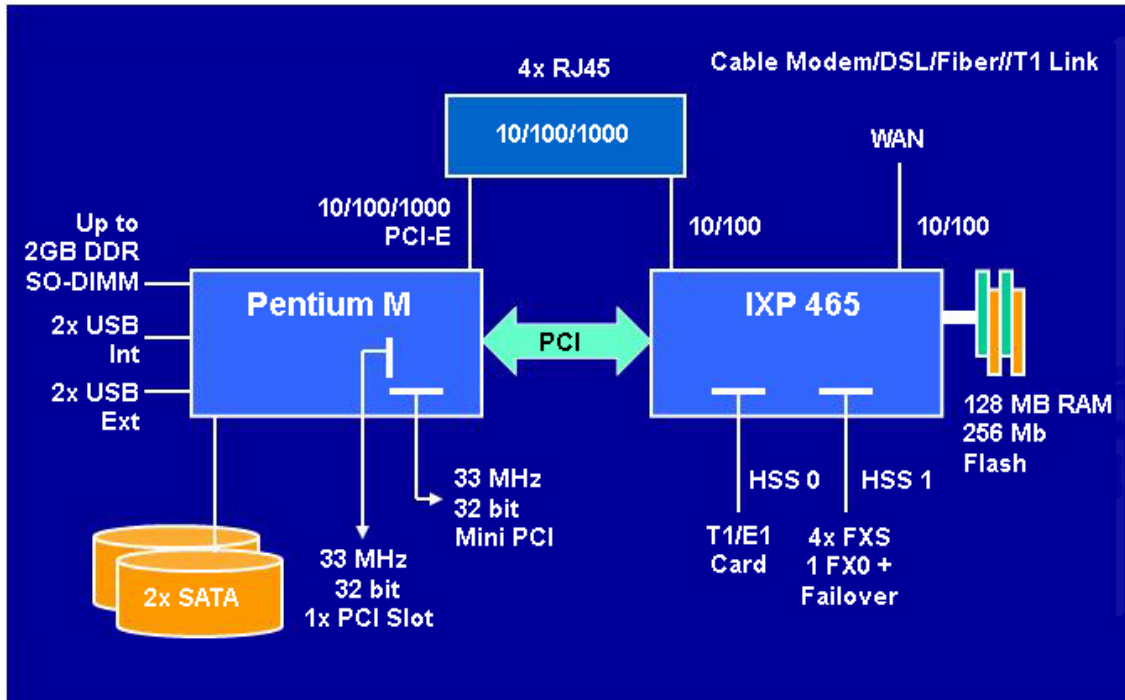
- Ethernet Switch
- Router Firewall / VPN
- QoS device
- WAN access device
- Analogue Telephone adaptor
- Application Server (Carrier Managed Services)

The appliance targets Telecom Equipment Manufacturers (TEMs), Providers, OEMs, System Integrators, and VARs. Its benefits are fast-time-to-market with an economical platform for VoIP, IP PBX, and other converged applications. The PL-10260 is representative of VoIP technologies that are paving the way for a broad range of integrated voice, data, and video solutions delivered over a single IP network.

The end-user is SOHO / SMB organizations, enterprise branch offices, and multi-tenant residential communities. By using the platform they gain a smooth transition from analog to the pure IP environments of the future. The platform helps level the playing field for SMBs with the large enterprise by providing feature-rich IP PBX applications at low cost. It can be easily installed, secure, and remotely managed using a single IP communications network. The unit can be deployed anywhere on the network, but as a 1U rack-mount device, this has limitations.

WIN CAP features a unique architecture that integrates a Low-Power Intel Pentium® M processor and Intel IXP465 network processor, thus enabling ultra-low latency through processor load balancing. Use of the Intel IXP 465 processor frees the Intel Pentium M processor to handle application processing tasks like transcoding incoming streams, local voicemail, local conferencing, and the storage and playback of voicemail from email.

Figure 1. WIN CAP Block Diagram



The architecture is optimized for maximum power efficiency, low heat, and low-power consumption and supports IP, PSTN, Wi-Fi (optional), WAN and LAN protocols.

Another innovation of the platform is its method of digital signal processing. The use of Intel® Host Media Processing (HMP) software for the DSP function helps maintain a lower price because it eliminates the need for an expensive DSP chip.

Software features and options include:

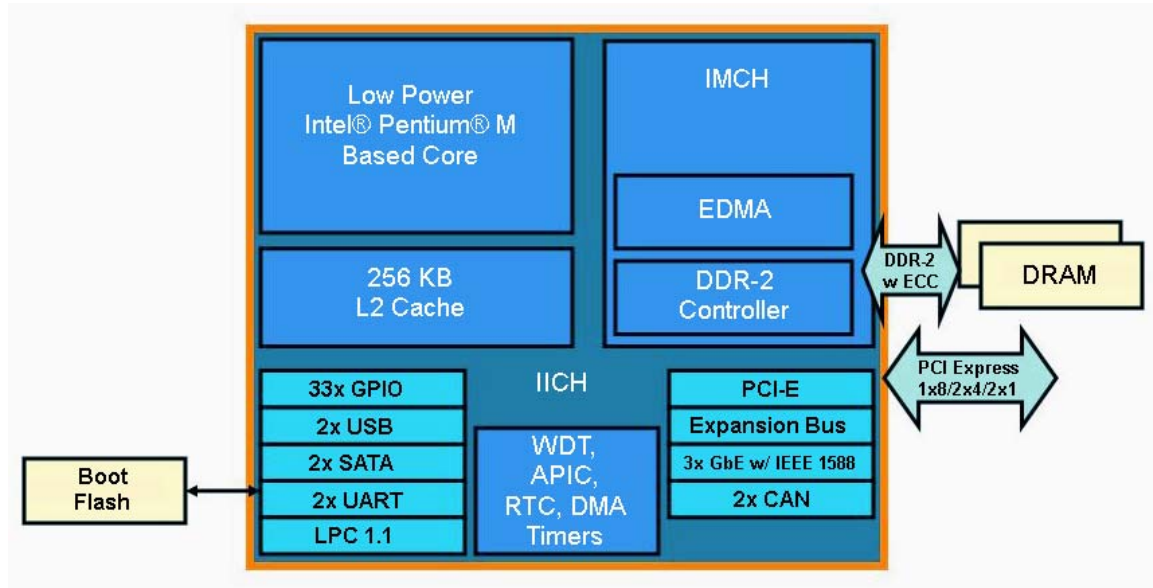
- Intel NetStructure® Host Media Processing (HMP) to deliver scalable, high-quality voice, data, and video
- Intoto® Secure ICP Software for feature-rich packet processing capability
- Open-source Asterisk® software can provide feature-rich IP PBX and call center functions
- Other Intel Embedded and Communications Alliance (ECA) members provide additional support for the WIN CAP™ including: Communigate® Systems, Cymphonix Xli™ Technology, Jungo® Ltd., LignUp® Corporation.

The PL-10260 is a state-of-the-art design that uses long-life embedded components. WIN is looking to extend this line with smaller, even more integrated form factors. With recent innovations in 45nm processor design WIN is extending its WIN CAP product line.

Tolapai-based WIN CAP...The Next Generation

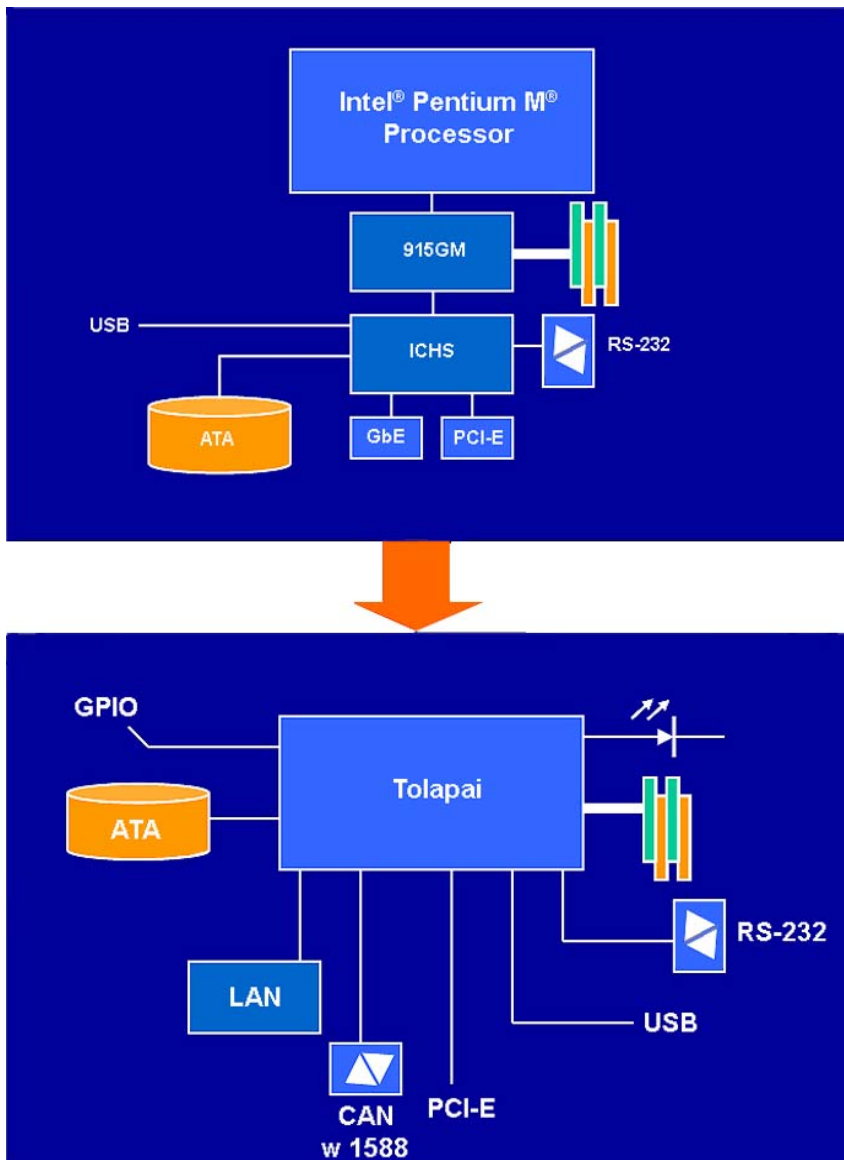
Tolapai is the System-on-Chip (SoC) processor that derives from the Intel® Menlow 45nm high-k metal gate technology. As such, it features high density micro-architecture that integrates the processing core, memory controller hub (MCH), and I/O controller hub (ICH) and more into a reduced footprint that can serve a broad range of industrial controller and embedded applications.

Figure 2: Intel Tolapai Block Diagram



The Tolapai footprint when compared to the standard four-chip design is reduced by approximately 45 percent. Because it takes less power to drive electrons through its smaller traces, power consumption is reduced approximately 20 percent. Throughput performance and processor efficiency are increased. The on-die inclusion of Intel® QuickAssist Integrated Accelerator technology further enhances performance and power efficiency. In addition to the CPU/MCH/ICH and QuickAssist integration, Tolapai includes an IXP Network Processor Engine (NPE) on die. This density positions the chip to serve converged applications, such as IP PBX where its resultant high through translates to low latency.

Figure3: Comparison of Traditional 4-Chip design and Tolapai



An extreme level of on-die integration means design simplicity at the board level. To design and manufacture systems based on Tolapai will take less time, present fewer possible points of failure, and feature low signal latency. Because of this Tolapai offers a solution to a broad range of applications that involve multi-media networked communications...everything from enterprises telephony to networked gaming, medical, and more.

Smaller footprint is not just a nicety in IP communications, but also serves as an enabling feature that opens up new deployment options. Operators will soon have the option to deploy converged systems in be central office, on-premise, in the POP, on the pole or anywhere on the span.

In addition, like the WIN CAP platform, the new Tolapai processor-based solution will offer broad operating systems options. It supports Linux, Free BSD, Windows Embedded, and XP. As for applications, it will provide the same feature-rich, low cost open systems software options as the PL-10260.