SELECTING AN EMBEDDED RTOS

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ON TIME SOFTWARE - RTOS PRODUCTS & SERVICES, 2009

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Q. First of all, tell us a little bit about yourself and your responsibilities at On Time Software.

A. My name is Peter Petersen and I am the managing director of On Time. I started this company back in 1989, which makes On Time one of the more persistent players in the embedded systems market. After having worked for several years as a software engineer and consultant, I started On Time 20 years with RTKernel, a real-time kernel for MS-DOS. In 1996, our current principal product On Time RTOS-32 was launched.

Q. If you would, please give us a very brief, bulleted outline of your products. What sorts of real-time operating systems (RTOSes), tools, and/or services does your company offer?

A. On Time's main product is *On Time RTOS-32*, a real-time OS for 32-bit x86 embedded systems. *On Time RTOS-32* is a modular OS with 6 main components. Two of these (*RTUSB-32*, a *USB host stack*, and *RTFiles-32*, a file system) are also sold separately as they can easily be ported to other platforms.

Q. What is On Time Software's "unique value proposition" for the embedded systems engineer or programmer who is considering an embedded RTOS? What do you and your products do to help him get his product to market faster, cheaper, better?

A. Ease of use is the main feature, which makes our customers get their products out the door faster than with other systems. Developers can work with one of the best available IDEs: *Microsoft Visual Studio. On Time RTOS-32* can be very small (16k RAM/ROM), but it can also be very comprehensive and contains everything a developer needs from an OS. Nevertheless, it can boot in less than 1 second.

Q. How are you different as a company from competitors? What sets your products apart from those of other RTOS companies?

A. A combination of many factors distinguishes us from others. "Ease of use", as mentioned above, makes developers more productive and less time is lost with learning yet another development environment. Our support for the Win32 API allows many software components originally developed for Windows to be reused on embedded systems. The

full source code of *On Time RTOS-32* is available and technical support is free with less than 24-hour turn-around times guaranteed.

Q. **What embedded architectures do you support - e.g., Intel architecture, MIPS, ARM, PowerPC, etc.?**

A. *On Time RTOS-32* runs on any 32/64-bit x86 CPU, including the Intel Atom CPU family. Being specialized on the x86 architecture, we take advantage of all of its unique features. For example, we support memory protection, running at different privilege levels, SSE, multi-processor/multi-core, etc. For targets with a BIOS (anything which can boot DOS or Windows), *On Time RTOS-32* runs out-of-the-box with no customization and contains drivers for all commonly used PC peripherals. We also support targets without a BIOS and ship several examples of target-specific chip-set initializations required for such targets.

Q. **What additional software do you offer such as networking, file systems, TCP/IP, security, IDE, GUIs etc.? What about development tools? Are there particular partnerships with other software companies that are especially helpful?**

A. *On Time RTOS-32* includes a FAT/CD-ROM file system, TCP/IP stack, USB host stack, and an object-oriented, Windows look-and-feel GUI. For development tools, we support Microsoft Visual Studio (including its integrated debugger), Borland Delphi, and Borland C/C++. For many years now, we have been working together with EBSnet Inc. (http://www.ebsnetinc.com/) and Swell Software (http://www.swellsoftware.com/) for our network and GUI components. We have recently entered new partnership agreements with acontis (http://www.acontis.com/) and Real-Time Systems (http://www.real-time-systems.com/) to support their respective software solutions to run an RTOS in parallel with Windows on the same computer.

Q. **How are your products sold? What is a typical fee arrangement? Is it royalty free? Per unit royalty?**

A. We license *On Time RTOS-32* on a per developer basis with high discounts for developer teams. There are no run-time royalties. Customer can also select which *On Time RTOS-32* components they need, and for each whether the optional source code is desired. This way, you never pay for things you do not need. A complete price list is available on our Web site page http://www.on-time.com/rtos-32-prices.htm.

Q. **Finally, what sort of "try before buy" experiences does your company offer? Are there free demo downloads, webinars, seminars? What web URL's can you point us to for more information?**

A. We offer a free Evaluation Kit, which anyone can download from http://www.on-time.com/rtos-32-eval.htm. The Eval Kit is fully functional and contains many example programs as well as the complete documentation. It allows executing *On Time RTOS-32* applications on a PC compatible target (including embedded PCs, PC/104 etc) or on evaluation boards for the *AMD Élan SC400/410* or *SC520* using the *Microsoft Visual Studio* debugger or Borland's free *Turbo Debugger.* Page http://www.on-time.com/rtos-32.htm has an overview of the operating system. An FAQ page is available at http://www.on-time.com/rtos-32-faq.htm.

Q. **Thank you for this interview.**