

SELECTING AN EMBEDDED RTOS



FEATURED INTERVIEW:

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EXPRESS LOGIC - RTOS PRODUCTS & SERVICES, 2009

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- Q. First of all, tell us a little bit about yourself and your responsibilities at Express Logic.**
- A. I manage the marketing activities at Express Logic. That includes partner relations, marketing communications, and product marketing. I do not handle sales, which is managed by David Lamie, our VP of Sales.
- I'm a former software developer, having worked on real-time systems back as far as the early 1970's in the AWACS program, and later on telephone circuit switches and nuclear power plant monitoring systems. I got into the field of array processors and scientific computing, and became sales manager and later, marketing manager for board manufacturers and a software tools and RTOS company. My background gives me a developer perspective, which I bring to Express Logic where I contribute to the product planning and marketing, present papers, write articles and generally stick my foot into all sorts of interesting topics.
- 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. Express Logic offers the following products for embedded development. These products are used to develop, and are found in, over 500 million electronic devices:
1. *ThreadX® RTOS*
 2. *FileX® file system*
 3. *NetX™ TCP/IP stack*
 4. *USBX™ USB Host/Device stack*
 5. *PEGX™ Graphics toolkit*
 6. *TraceX™ Graphical event trace tool*
 7. *BenchX™ Eclipse-based IDE*
- Q. What is Express Logic'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. We offer an easy-to-use RTOS that is field-proven in 500 million devices. Developer studies have shown that projects using *ThreadX* get completed on or ahead of schedule more often than projects using other RTOSes. Developers find our API to be intuitive and easy to learn and use, which explains why they continue to use *ThreadX* for product after product. *ThreadX* offers the following key features and benefits:
1. Full source code - for easier understanding of RTOS operation, and ability to fine-tune for specific application needs;
 2. Royalty-free licensing model – for low cost manufacturing;
 3. Small memory footprint – for use in limited memory situations;
 4. High performance – for fast context switching, low overhead;
 5. Broad microprocessor support – over 30 microprocessor architectures are supported, including all the industry leaders in the 32-bit field, and some 16-bit architectures as well;
 6. Freedom of choice in tools – including *GNU*, *ARM RealView*, *Freescale CodeWarrior*, *MIPS SDE Navigator*, *IAR Embedded Workbench*, *Wind River Workbench*, *Green Hills MULTI*, *Lauterbach TRACE32*, and many more.

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

- A. Our products are field-proven to work in hundreds of millions of units, they are very easy to use, and we provide full source code with royalty-free licensing. Many of our competitors claim some of these things too, but none can match our broad deployment, and some even copy our API – which is a great compliment to its appeal.

We provide direct, expert customer support, and help our customers to be successful and to get their products to market fast. Customer testimonials are evidence of this support, which is essential even for a bulletproof product like ours, because application developers still need help from time to time.

Technically, our products are smaller and faster than most of our competition, and they are all developed and supported in-house, designed for embedded application, not adapted from open-source.

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

- A. All 32-bit processor architectures, including the ones you mention – Intel, MIPS, ARM, PowerPC, and also those from ARC, Atmel, Freescale, Renesas, Altera, Luminary, Microchip, Tensilica, Analog Devices, STMicro, AMCC, NXP, Cirrus Logic, Xilinx, IBM, and more.

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. Yes – we offer all of the above:

1. Networking: Our *NetX™* and *NetX Duo™* TCP/IP networking stacks support IPv4 and IPv6 networking, and a host of additional application protocols.
2. File System: Our *FileX®* embedded file system is FAT16/32 compatible, and is robust for demanding consumer applications.
3. IDE: Our new *BenchX™* IDE is based on Eclipse, but adapted for embedded use. It includes integrated GNU tools and a Macraigor USB Wiggler probe, all for \$1,000/seat.
4. GUI: Our *PEGX™* graphical toolkit is a GUI development suite that can be used to create complex or simple user interfaces.
5. Security: Through partnerships with security protocol suppliers, we offer SSL, IPsec, and related protocols that work with *ThreadX* and *NetX*.
6. Development Tools: In addition to our own *BenchX™*, we support use of many other development tools such as *GNU*, *ARM RealView*, *Freescale CodeWarrior*, *MIPS SDE Navigator*, *IAR Embedded Workbench*, *Wind River Workbench*, *Green Hills MULTI*, *Lauterbach TRACE32*, and more.

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

- A. All of our products are sold royalty-free (no per-unit charge).

RTOS products are sold on a “project” basis, licensed for use for a particular project, product, product line, or product family, using a particular microprocessor, and developed at a specific location. Depending on the number of products to be developed, the processors used, and the location(s) at which development is performed, pricing varies.

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 free demo downloads. See: <http://www.rtos.com/page/copyrightNotice-CD.php>

In addition, free full-source code evaluation licenses are offered to allow developers to examine and use our products before buying.

In general, for additional information about any of these topics, please visit: <http://www.rtos.com/>

Q. Thank you for this product interview.