

## How Do You Choose the Right MCU?



Jon Titus on 10/13/2011

Engineers can now choose microcontrollers from dozens of families that offer hundreds of architectural variations. Whether you need a PIC, MSP430, ARM, 8051, x86, or other architecture, you can find a chip that meets your needs. But the "finding" process can take a long time unless you have a way to quickly and easily compare capabilities. In 2010, a survey by EE Times revealed 73 percent of the responding embedded-system designers would like a reliable cross-vendor MCU search engine to simplify finding an MCU that meets their requirements. It's available now.

For several years, Rick Hully, the founder of GruntWare, Inc., has compiled a searchable database of information for over 16,000 MCUs from 25 semiconductor manufacturers. And you can use his Gopher Web Plus search for free. To perform searches, visit: <http://gruntwareinc.com/>. You can select from 110 *normalized* search parameters. That means Hully has performed parameter conversions to allow "apples-to-apples" comparisons. (Hint: start with as broad a search as possible and narrow it in subsequent searches.)

You can choose the search criteria based on individual manufacturers and chip capabilities. I searched for 8051-type MCUs that include an Ethernet port and the Gopher search engine found three part numbers. Click on a part number and you go to another display that links to the manufacturers' Web sites and the part's data sheets. The display also lists hot links for related hardware, such as device programmers, JTAG pods, and evaluation boards, as well as third-party software and programming tools, and any applicable real-time operating systems. According to Hully, the types of third-party tools include TCP/IP stacks, file systems, web-server tools, performance analyzers, modeling tools, and debuggers. Links for those items take you directly to the manufacturers' or sellers' Web sites. Hully also noted the Gopher Web Plus site includes over 245,000 links to more information.

A link to the Octopart Web site provides availability and price information for MCUs and development tools. So you know what

companies have products in stock for immediate delivery, and you can quickly connect with a vendor to make a purchase.

The free Gopher Web Plus tool does not include all normalized characteristics in the Gopher database, though, and it does not let you identify pin conflicts that could occur if peripherals you need share a pin. Find these additional search functions and the pin-conflict tool in the Gopher PC edition, which costs \$US 299. In my opinion, the analysis of pin conflicts alone makes the Gopher PC edition an inexpensive purchase. For a comparison of the free Web-based search engine and the Gopher PC edition, visit:

<http://gruntwareinc.com/GopherPC/CompareGopherProducts.html>.

May your lab time grow longer, and your MCU-search times grow shorter. --Jon Titus