

## Leverage yesterday's Logic Analyzers for tomorrow's debug needs

By Barbara Aichinger FuturePlus Systems

During the boom industry years of 1998-2002 many high tech companies loaded up on logic analysis test equipment only to see it sit and gather dust during the down years. Many companies have liquidated their assets and flooded the used test equipment market with some very nice equipment. However most manufactures have discontinued these models and engineers have doubts about support and usability. Can this equipment be used for today's technologies like **Serial Rapid IO, PCI Express, PCI-X and DDR** at a substantial savings? Let's take a look.

A quick search of the web finds a dearth of logic analyzer frames and cards from both Tektronix and Agilent. For example, an Agilent 16700B mainframe can now be purchased for less than \$3,000.00. Cards for this frame are also readily available. A 16717A card can be purchased for as little as \$1,350.00. The 16700 family of cards and frames are one generation back from Agilent's newest 16900 offering. Now how do engineers link the general purpose logic analyzer to the technology on their target? "They use an analysis probe" states Bill Furch Vice President of Marketing and Sales at FuturePlus Systems. "Logic analysis probes are the link between the general purpose logic analyzer and the target application" FuturePlus Systems is one such vendor that provides these specialized probes for use with Agilent logic analyzers. "We almost always try to make our newer probes work with the previous generation of logic analyzers" adds Furch. "It just makes sense for us to try to reach the largest number of customers possible. In addition it allows the customer to upgrade the logic analyzer and not have to worry about upgrading the probe since most of our probes will work with both the new logic analyzers and ones that are one generation back." added Furch.

Furch points out that values are to be had using the 16700 family of products. For example, the 16700 series can be used for **ExpressCard, PCI Express x1,x2 and x4** analysis using the FuturePlus Systems FS4400. The logic analyzer plugs directly into the probe and the probe directly into the target. This is because the FS4400 has both the 40 and 90 pin logic analyzer headers supported on the product. This adds up to a substantial cost savings. With 16700 mainframes selling for less than \$3,000.00 and cards for less than \$2,000.00 engineers can just add in the appropriate analysis probe from FuturePlus Systems and have the most cost effective test set up that the industry has yet to see.

### PCI Express support using the 16700 series and the FuturePlus FS4400

Logic Analyzer Modules	Number of cards required for X1 and ExpressCard Analysis	Number of cards required for X2 & X4 analysis
16717-719	2	3
16750-752	2	3
16753-756	2	2
16760	2	3

For 32 bit **PCI-X 2.0** support a single 16750 card can be used inside the 16700 frame along with the FS2009 analysis probe. For 64 bit **PCI-X 2.0** analysis engineers need only add one additional logic analyzer card. Compare that price against the expensive dedicated protocol analysis tools offered by other vendors. “The flexibility of a general purpose logic analyzer will always outshine the dedicated solutions” replied Ed Aichinger FuturePlus co-founder and President. “ We offer the same type of analysis as a single technology protocol analyzer for a much lower price. Customers quickly learn that you can just change the probe when you change technologies.”

Got Memories? FuturePlus supports them all. For **DDR400** support four 16753 cards can be used. So there is no need to purchase new cards if you have these in your lab.

Even new and upcoming standards like **Serial Rapid I/O** can be supported using the previous generation of logic analyzers. The FS4410 is just a FPGA code change and cable swap from the FuturePlus FS4400. This then gives engineers up to 3.125 Gb/s **Serial Rapid I/O** support with just two 16753 series of logic analysis cards

Worried about support and warranty? Check out Agilent's CertiPrime program that advertises *Equipment that's close to new except for the price*. With this program you get remanufactured equipment that carries the same warranty as a new product. Agilent also has the Agilent Advantage program available through its authorized resellers. This is a program that gives the buyer protection against cost of repairs and unrestricted access to Agilent technical support for the term of the agreement.

So if your lab is not up for a makeover you can still get the job done by efficiently using the equipment you have or equipment you can cheaply acquire along with the appropriate analysis probes.

For more information on the equipment mentioned in this article go to [www.futureplus.com](http://www.futureplus.com) or call 1-719-278-3540 ex 10.