

Re: Large RAM sizes in embedded systems

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- *From:* "linnix" <me@xxxxxxxxxxxxxxxxxxxxxx>
 - *Date:* 27 Dec 2006 09:03:04 -0800
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larwe wrote:

linnix wrote:

Let us assume for a moment that you have access to the best chips, layouts and bank accounts.

A tentative budget to build the machine is US\$200k.

We can do it for \$100K.

You can build it with 24 modules of 32G each.

I'd need to build them from scratch, unfortunately. The largest size I see as COTS is 4GB.

You probably means SIMM/DIMM modules, which doesn't make much sense for the amount of chips you need.

Yes, you would have to build the ram modules. The 60 balls chips have much smaller footprints than SIMM/DIMM sockets. You would save lots of PCB spaces as well as height. Eight layers should work for individual chips, but additional layers for cross routings. Sixteen layers should be sufficient for 500 to 1000 balls FPGA. You don't need high gate counts for SDRAM controller, but you would need the high ball counts.

Furthermore, I would use stackable wide bus (200 to 300 pins) between the 24 modules.

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Part of my original question is to see if people are aware of COTS stuff that I didn't find in my searching.

Assume that you can get the FPGA for \$50 and SDRAM for \$5 each, it can be build for approximately \$20,000, give or take a few K.

1TB of RAM is something like \$70,000 of 4GB modules :)

About \$20,000 in chips, in 3K qty.

Micron makes 512Mx4, perhaps 1Gx4 soon.

I would use deep and narrow chips, for easier routing/buffering.

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