

LAN Services Hot Tip #17

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COMPAQ IDA Controllers

The COMPAQ IDA (intelligent drive array) controller is a 32-bit, EISA-based hard drive array controller that is standard equipment on the COMPAQ SYSTEMPRO, and can be added to a SYSTEMPRO/LT. Drive array technology distributes data across a series of synchronized hard disk drives that function as one or two logical drives. Up to four drive array pairs (eight drives) can be combined into an array, providing up to 4.08 GB of storage. Benefits of this technology in a LAN environment include better data security: IDA fault-tolerant features supported by VINES include data guarding and drive mirroring (not controller duplexing, however).

Even if the server is not configured for data guarding or mirroring, the drives must be installed in pairs. Drive array pairs supported include 1.02GB (2 half-height 510s); 680MB (2 half-height 340s); 420MB (2 half height 210s); and 240MB (2 half height 120s). Standard drives shipped with SYSTEMPRO/LTs are 120, 210, 340, and 510 IDE drives, and each of these can be combined with another like-drive and turned into an array pair for use with an IDA controller.

In addition to purchasing a second drive (or more to result in an even number of drives) you'll also need to purchase the appropriate mounting brackets for the drive array -- which will vary depending upon the drive capacity -- and you'll need the appropriate cables to connect your drive arrays to the IDA controller. Refer to table 1 for part numbers. Each mounting bracket holds two drives; Compaq's suggested retail price is about \$75.

Table 1: Mounting Brackets for Drive Array Pairs

IDE drive capacity	Array pair capacity	COMPAQ part number
120 megabyte	240 megabyte	116875-001
210 megabyte	420 megabyte	116875-001
340 megabyte	680 megabytes	116876-001
510 megabyte	1.02 gigabytes	116876-001

If you install an IDA controller in a SYSTEMPRO/LT after initially installing VINES and setting up your server, be prepared to spend some time making the transition to the drive array scheme. The process involves setting up the hard drive array as if it were a new drive: you'll need to reload VINES, apply any patches, and restore from a backup, in addition to physically installing the hardware.

1. Perform a complete system backup, and confirm readability of the tape. You may want to make a second backup tape, as insurance: the process of combining drives into an arrayed pair completely wipes out the data on your disk.
2. Power down the SYSTEMPRO/LT.
3. Remove the IDE drive and associated cabling and controller card.
4. Install the IDA controller into the bottom-most slot, slot 1. This is simply the best position for the card given cable length; it's an ease-of-fit, not a technical issue.
5. Position the original drive and the second drive you purchased in the mounting brackets, and then fit the bracket assembly into the SYSTEMPRO/LT chassis.
6. Cable the IDA controller and the drive array pair or pairs together. Also, connect the power cables to the individual disk drives.

7. Start the EISA configuration utility to identify the arrayed system. The configuration utility will sense that you have two (or more) drives installed; most of this is self-configuring.
8. Use the EISA configuration utility to setup the fault tolerance you require (see the LAN Cookbook, pages II-30, 31 for more information).
9. Run COMPAQ's Diagnostics (also part of the EISA configuration utility) to ensure that your system is intact.
10. Put the cover back on.
11. Reload the VINES operating system software and restore your server using the backup tape you made in step 1. See LAN Services "Server Reload Procedures" for instructions.