Appendix III

Promise IDE RAID (Optional)

Promise ATA RAID uses advanced data handling techniques that takes advantage of the fact that multiple drives are performing the work of a single drive. This includes tagged command queuing/scatter-gather/elevator seek which basically re-orders requests for data depending on their location on the hard drives. This provides more efficient use of the read/write heads, particularly in retrieving data.

❒ IDE RAID

In a standard PC, each hard drive is seen as an independent disk designated by letters like C,D,E, etc... In a RAID system, multiple hard drives are placed into one or more "arrays" of disks. Each array is seen as an independent disk, though that array may include upwards of two, three, four, or more drives. This is why RAID stands for Redundant Array of Independent Disks. In an ATA RAID array, of course, the drives are low-cost ATA.

❒ Supported RAID Levels

Using RAID arrays inside a PC offers much greater flexibility, depending on application usage. Different RAID levels perform different functions

Striping

RAID 0 (known as "striping") links each drive in the array as one huge drive. Storage capacity is determined by the smallest drive in the array. That capacity is then applied to format all other drives in the array. If using a 40 GB, 60 GB, and 45 GB drive in a RAID 0 array, your system will see one huge drive of 120 GB (40 GB x 3) versus 145 GB. RAID 0 offers double or more performance under sustained data transfers when one drive per ATA port is used. In such a configuration, unlike SCSI, ATA drives are always available to the system. SCSI requires more management of the SCSI bus.

Mirroring

RAID 1 (known as "mirroring") makes and maintains an identical image of data from one drive to a second drive or from multiple drives to a second set of multiple drives. Should one drive fail, the working drive or drive set continues operating. To the system, such an array is still seen as a single drive letter. While RAID 1 is the least efficient use of hard drives to provide data protection (since the user does not see any of the additional storage capacity of the mirrored drives), low-cost ATA makes it acceptable. If performing 1-to-1 mirroring with two 40 GB drives, the system only sees one 40 GB drive. ATA RAID 1 represents a significantly lower cost than SCSI RAID 1.