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SEMICONDUCTOR MEMORIES STAR AT ISSCC. IBM described to engineers at ISSCC last month a new high-speed, 3-D semiconductor memory made with bipolar monolithic IC's. IBM fused the new memory-storage circuits onto surface of a single silicon chip that measures 112 mils² (seen at left on page of Webster's "Seventh New Collegiate Dictionary" for size comparison). Each chip provides 64 memory-storage cells. The 128-bit module then is used to structure various versions of the memory. Together with the drive and sense circuit modules, 72 of the memory modules are packaged on a 7- by 9-in multi-layered pluggable card (below, left) with a 512-word by 18-bit capacity. In background are 16 storage cards and four logic and terminating cards that make up the basic storage unit of 2048 words \times 72 bits. Complete 1/4-million-bit buffer memory has just two units. Access time is 40 ns, rear or write cycle time is 60 ns.

