When Texas Instruments and Tektronix team up, brilliant ideas take shape.

- For high-resolution color graphics and lower costs, Tektronix uses TI's TMS4416 64K DRAM in its top-of-the-line graphics terminal (Page 2).
- TI's comprehensive choice for microprocessor-based systems: 64K DRAMs, static RAMs, controllers, and comparators (Page 3).
- First low-cost 64K DRAM chip carrier doubles the density of DIPs and provides all the advantages of TI plastic J-lead design (Page 4).
TI's new memory

125 MHz pixel-rate performance. With memory part count cut by 75%. And cost savings more than 50%. The unique TMS4416 16K x 4 DRAM from Texas Instruments is the first 64K dynamic random-access memory (DRAM) in the world that could provide this performance at that price. And that's why it was chosen for the new, advanced Tektronix 4115B Computer Display Terminal.

Designed for the most demanding CAD/CAM applications, the Tektronix 4115B features a high-resolution color raster-scan display. This 60-Hz, non-interlaced, flicker-free display provides resolution of 1280 x 1024 pixels. Up to 256 colors can be displayed at one time from its palette of 16 million colors!

System-wide cost savings

By upgrading from four 16K devices per single in-line package to one TMS4416 ByFour* DRAM (see photo), Tektronix cut costs by more than 50% and memory part count by four times.

System costs also were lowered, due to fewer interconnects and support circuits. This reduced inventory, cut power requirements, and enhanced reliability.

Lower power, higher reliability

With one 5-V power supply at 130 mW per 64K, the TMS4416 significantly cut power consumption. This increased power supply margins and reduced noise. Plus, lower heat dissipation and fewer interconnects improved system reliability.

Equally important, TI met Tektronix's critical delivery schedule.

Meets many design needs


The output/enable feature makes interfacing the TMS4416 with microprocessors simple.

An exceptionally "clean solution," TI's TMS4416 16K x 4 DRAM enabled Tektronix to reduce memory component count by four in its new 4115B Computer Display Terminal. Each TMS4416 replaced four 16K devices mounted on a single in-line package.

*Trademark of Texas Instruments
16K x 4 DRAM cuts costs by 50% for Tektronix.

TI's fast 64K DRAM just got faster.

Now, TI's pacesetting TMS4164 64K x 1 DRAM comes in a still speedier version. Our new TMS4164-12 provides 120-ns access time, 230-ns cycle time, and just 175-mW typical power consumption per device. Two other speeds also are available: 150 and 200 ns.

We've also taken another positive step. To increase board density and lower costs, the TMS4164 now can be yours in 0.285 in. x 0.425 in. plastic chip carriers.

Like the TMS4416, the TMS4164 requires only a single 5-V power supply. This—combined with fewer sense amplifiers—reduces power dissipation and increases system reliability.

In addition, both the TMS4164 and the TMS4416 employ interlocked internal clocks, which provide more precise timing sequences. This allows all chips to run at maximum speeds without the danger of race conditions. And these clocks reduce power consumption by ensuring that each clock is activated only as long as necessary.

When you need high-quality 64K DRAMs, rely on TI's two outstanding choices. For high speed and low power, select the TMS4164. For high bandwidth and modularity, choose the TMS4416. Both are cost effective. Easy to design with. And state of the art.

For more information on the TMS4416 and TMS4164, check number 2 on the coupon.

Fast, low-cost 16K static RAMs.

For an economical, high-density memory in smaller systems and peripherals, you can't do better than TI's TMS4016 static RAM.

Interchangeable with TI's TMS2516 and all other 16K, 5-V EPROMs, the TMS4016 makes board design simple and fast. This gives you flexibility to prototype and de-bug in RAM, then convert to EPROM or ROM for production. All in the same socket.

Just right for microprocessors, the TMS4016 features 2K-by-8 organization and single 5-V power supply. And operates at 120, 150, 200, or 250 ns with 385 mW maximum power dissipation.

For more facts on the low-cost TMS4016, check coupon number 3.

New cache-tag comparator speeds system throughput.

TI's new TMS2150 cache address comparator can improve high-performance microprocessor or bit-slice system throughput by up to three times. Plus reduce cache memory IC count, board area, power dissipation, and cost.

With the TMS2150, no wait states need to be implemented in microprocessor access cycles in response to slower-cycling DRAMs. The TMS2150,
Increased board density can be achieved economically with TI's exclusive plastic 64K DRAM chip carriers—an industry first.

Now you can pack even more memory into less space for less money. TI's unique plastic TMS4164 chip carrier gives you the high-density memory option you need. At a price you can afford.

Dramatic reductions in board size

TI's low-cost 64K DRAM chip carrier provides twice the density of the conventional DIP. System size can be substantially reduced. And significant cost savings realized.

Unlike conventional DIPs, TI's advanced TMS4164 in chip carriers can be surface mounted. As a result, the number of layers in the printed circuit board is greatly reduced, and fewer boards are required.

Ideal for SIPs

TI's 0.285 in. x 0.425 in. surface-mounted chip carriers are designed to meet the critical height requirement of single in-line modules (SIPs), as well as offer the necessary low power dissipation. And, now TI has in development several single in-line module arrays in various organizations to meet your future system needs.

For more information on the world's first low-cost 64K DRAM chip carrier, check number 5 on the coupon.