MOS TECHNOLOGY, INC.

MOS

MOS TECHNOLOGY INC. FIRSTS

1st

- calculator arrays with memory
- two-chip scientific calculator set with algebraic entry and double level parentheses
- single-chip scientific calculator array with algebraic entry and double level parentheses

- high speed 16K ROMs
- high speed 32K ROM
- microprocessors utilizing N-channel silicon gate depletion mode transistors (single 5V supply)
- family of microprocessors with software compatibility
- microprocessor compatible array with RAM, ROM, I/O and interval timer

MOS Technology, Inc., in business for a little more than five years, has grown to be one of the largest independent suppliers of calculator arrays.

With a volume exceeding $17,500,000.00 reached in the year ended February, 1975, MOS Technology, Inc. is continuing its expansion both in calculator related products and in the production of a microprocessor family including random access memories and related I/O.

Attempting to restore reality to the semiconductor business, MOS Technology, Inc. prices fairly, makes no false promises and does not oversell. The company *produces what it promises and delivers on time.*

This approach has given our customers confidence in us as a supplier and they are able to plan their production with the assurance that we will deliver.

MOS Technology, Inc. is dedicated to the following:
a) High-volume MOS/LSI production
b) Design of high technology complex MOS/LSI
c) The best quality masks available
d) On-time delivery
e) Fair pricing

inside ◼◼●◼

the plant:

The company's operations are conducted from a modern two-story specially constructed facility located in the Valley Forge Corporate Center in Norristown, Pa., approximately 25 miles from Philadelphia. The plant was constructed in 1970 specifically for the company's needs as a high-volume semiconductor manufacturer and contains 60,000 square feet which can be expanded within existing zoning laws and industrial park approvals to 100,000 square feet. All production is on 3-inch wafers and current plant capacity is between 500,000 and 750,000 finished arrays per month. Also there is a separate in-house R&D laboratory for the development of advanced processes and products.

processes
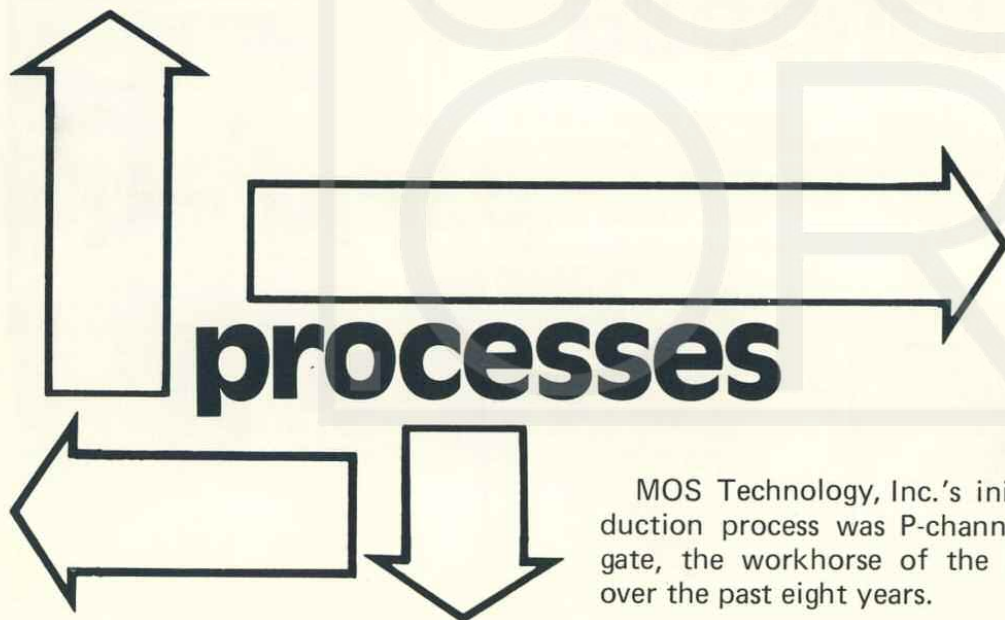
Today, the company has refined the technology to meet high-volume production requirements and utilizes the P-channel metal gate production process with depletion mode devices where ion implantation sets the electrical parameters for both the enhancement and depletion transistors.

MOS Technology, Inc.'s initial production process was P-channel metal gate, the workhorse of the industry over the past eight years.

The microcomputer product family is produced with an N-channel, silicon gate, depletion mode process using ion implantation to set precisely each of the three main electrical parameters.
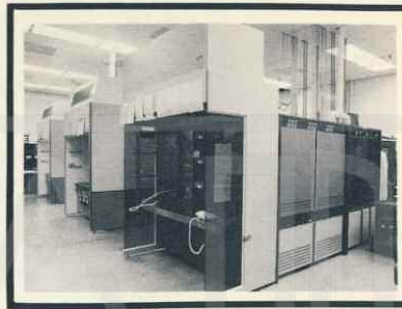
photomask
Our complete in-plant photomask facility utilizes proprietary zero-defect techniques to fabricate the industry's highest quality chrome and emulsion masks.
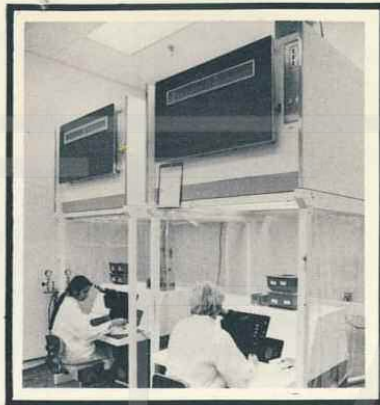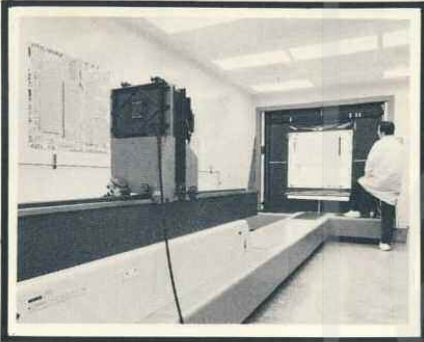
projection alignment
To complement these high quality masks, MOS Technology, Inc. has been a pioneer user of Perkin-Elmer projection alignment systems.

wafer fabrication
Our entire wafer fabrication area has three-inch wafer processing capability using zero-defect photomask, projection alignment and state-of-the-art processing techniques. The company is currently producing high yielding, large area complex devices in high volume.

accelerator
The ion accelerator is utilized in the fabrication of advanced calculator and microcomputer products.

PRODUCTION

assembly
In addition to our in-plant assembly in Valley Forge, the company employs several qualified off-shore facilities.

FACILITIES

data processing center
Computers are utilized for engineering design, logic simulation, nodal analysis and microprocessor software development.

testing
The on-site testing employs both commercially available test equipment and computerized test equipment specially designed and fabricated by MOS Technology, Inc.

products

microcomputers

- N-CHANNEL MICROCOMPUTER FAMILY USING SILICON GATE DEPLETION MODE PROCESSING (single 5V p.s.)
- MICROPROCESSOR USING EXTERNAL TWO-PHASE CLOCK
- MICROPROCESSOR UNIT WITH ON-THE-CHIP CLOCK
- MICROPROCESSOR UNIT WITH TWO INTERRUPTS
- MICROPROCESSOR UNIT WITH ONE INTERRUPT
- A ONE-CHIP COMBINATION OF ROM, RAM, I/O AND INTERVAL TIMER
- RAM, 1024 X 1
- RAM, 256 X 4

calculator arrays

- FIVE FUNCTION
- EIGHT FUNCTION
- FULL MEMORY CONTROL
- SCIENTIFIC
- TEN-WORD BUFFER MEMORY
- FIVE - LEVEL PARENTHESES MEMORY CONTROL
- FINANCIAL
- METRIC CONVERSION
- PROGRAMMABLE

Read Only Memories

- **2K**
  7 X 5 X 64 Char. Gen. Dyn. L.V.
  5 X 7 X 64 Char. Gen. Dyn. L.V.

- **4K**
  7 X 9 X 64 Char. Gen. Dyn. L.V.
  7 X 10 X 32 Char. Gen. Dyn. L.V.
  10 X 12 X 32 Char. Gen. Dyn. L.V.

- **8K**
  7 X 9 X 128 Char. Gen. Dyn. L.V.
  8 X 1024 ROM Dyn. L.V.
  9 X 7 X 128 Char. Gen. Dyn. L.V.
  10 X 768 ROM Dyn. L.V.
  10 X 12 X 64 Char. Gen. Dyn. L.V.

- **16K**
  8 X 2048 ROM Dyn. L.V.

- **32K**
  8 X 4096 ROM Dyn. L.V.

Custom Arrays

- AVIONICS
- GAMES
- AUTOMOTIVE
- VENDING MACHINES
- LOGIC CONTROL
- COIN CHANGERS
- ELECTRONIC ORGANS

Quality and Reliability Assurance

The company's QRA program is one of the best in the industry. The quality and reliability of its products have earned the company an international reputation for excellence.

Cost Effectiveness

MOS Technology, Inc. set a new pattern for the calculator industry with the introduction of better products for lower prices than had heretofore been available.

The company is a leader in providing more performance per dollar. The single-chip scientific calculator array series now in production carries a lower price than did the eight-function array when it was first introduced.

With the introduction of a $20.00 microprocessor, MOS Technology, Inc. once more set a new pattern of cost effectiveness for the industry. And we plan to maintain this leadership in the microprocessor area in the future exactly as we have done with calculators in the past.

answers to the questions most often asked about MOS TECHNOLOGY, INC. and its microprocessor family

Is the $20.00 price real?

Yes.

The price is based on our manufacturing experience of almost 3,000,000 of the world's finest calculator chips including high-volume delivery of scientific calculator chips up to 230 mil x 230 mil in size. The low introductory price was picked to allow everyone to try a product which we feel is superior to any in the industry. We suggest that you buy one and prove that to yourself.

What is the volume price of this product?

No games. We introduced the part at a sample price of $20.00, and that continues to be the low-volume price. If you have large production quantities, the price is lower.

What is the performance of the MCS6501?

The claim that the MCS6501 beats all other competitive eight-bit microprocessors is substantiated in two areas. First, utilizing the A H Systems benchmarks (the only set of benchmarks currently available from an independent consultant), we outperform all other standard products indicated in all but one case. Second, although recently several of our competitors have offered premium higher frequency products that may allow them to equal or outperform our processors, we will be announcing higher-speed microprocessors that will maintain or improve our current performance edge.

Is the part actually completed?

MOS Technology has been sampling selected accounts since July 1, 1975, with the result that the microprocessor and our cross assembler are currently running in several of our customers' houses.

What is your second source status?

Recognizing the need for a qualified source for its product, MOS Technology, Inc. has selected Synertek, a proven supplier of five-volt N-channel products primarily in the 2101, 2102 and 2112 family of RAMs.

In addition, it will be available for deck sales. Batch decks for the CDC, IBM, and PDP-11 class machines are available and we will support several other popular mini and major computer systems in the near future.

Comparing your part to the M6800, why did you cut the stack back to one page and why did you cut out accumulator B, etc.?

Although the MCS6501 is a direct plug replacement for the Motorola 6800, no real attempt was made to maintain exact software compatibility with the 6800 because of our desire to have significantly greater addressing flexibility and to allow for upward expansion in the product family. Our primary objective was to develop a low-cost processor—and all other decisions were made on that basis.

We think that you will find that the use of the second index register more than compensates for the loss of the second accumulator and the eight-bit stack pointer helped us to reduce the cost of the chip. Because of the significantly greater addressing power, one does not need to use the stack for other than hardware and subroutine processing. As a result, a one-page long stack should be more than adequate.

Software support?

This question is answered partially by the review of the software in the documentation. Current plans involve having the software available on several of the more popular Time Sharing services.

When will parts be available in production quantity?

MOS Technology will deliver several thousand parts during September, 1975. Delivery of the product in volume is slated for the last quarter of the year.

What is the availability of the support products?

MOS Technology, Inc. is developing and will be announcing additional I/O and memory products in support of the microcomputer product line.

if you care about
Price
• Performance
• Quality
• Delivery

start doing business with ⅢO≡

LOCAL ACCESS TO MOS TECHNOLOGY, INC.

FROM PHILA. INTERNATIONAL AIRPORT
Take Industrial Highway (Rt. No. 291) across Penrose Bridge. At first light after bridge, take left hand turn (26th Street) and follow signs as marked for Schuylkill Expressway to Valley Forge. Travel Expressway approximately 20 miles to Exit marked Rt. No. 202 South-Paoli. Follow Rt. No. 202 to Betzwood Bridge cut-off, turn right and go approximately 2.25 miles to Trooper Road (first red light). Take Trooper Road to Van Buren Avenue (Valley Forge Corporate Center), turn left and drive to far end. MOS TECHNOLOGY, INC. building is located on your left.

FROM KING OF PRUSSIA
Take Rt. No. 202 South to Betzwood Bridge cut-off. Turn right and travel approximately 2.25 miles to Trooper Road (first red light). Take Trooper Road to Van Buren Avenue (Valley Forge Corporate Center). Make left on Van Buren Avenue and drive to far end. The MOS TECHNOLOGY, INC. building is located on your left.