Product Announcement Bulletins

- 4K/8K Statis Memory Expansion Modules
  KIM-2 and KIM-3 September 21, 1976
- KIM-4 Motherboard
  September 21 1976
- KIM Resident Assembler/Editor
  September 21 1976
- Product announcement KIM-2 and KIM-3
  June 7, 1976

MOS

MOS TECHNOLOGY, INC.
VALLEY FORGE CORPORATE CENTER (215) 666-7950
950 RITTENHOUSE ROAD, NORRISTOWN, PA. 19401

PRODUCT

ANNOUNCEMENT

BULLETIN

SEPTEMBER 21, 1976

4K/8K STATIC MEMORY EXPANSION MODULES
KIM-2 and KIM-3

The KIM-2 and KIM-3 are memory expansion modules designed for use with systems using the KIM-1 microcomputer. Both modules are completely assembled and tested. High speed, low power static memory integrated circuits are used - no memory slow down or refresh cycles are required. An on-board regulator allows system operation from a +8 volt unregulated power supply. Switches on the board allow the boards to be placed at any 4K (KIM-2) or 8K (KIM-3) boundary in the system memory space. Complete documentation is provided for board installation, checkout, and operation. Schematics and theory of operation are also provided. A single KIM-2 or KIM-3 can be wired directly to a KIM-1 module. System expansion to 65K of memory can be implemented using a KIM-4 motherboard.

SPECIFICATIONS

	KIM-2	KIM-3
Current required at +5v (5% regulated) or 8-10v unregulated	1.5A	3.0A
Memory size (8-bit words)	4096 words	8192 words

KIM-2 and KIM-3

Physical Dimensions:	10'' x 6 1/2'' exclusive of connector tabs and removal tabs.
Connector:	Single 44-connection male edge connector. Mating female connector-similar to Vector R644. Connector tabs are centered on 10'' side of board.
Warranty:	90 days parts and labor
Memory Circuits:	High speed, low power static memories. 450ns access time. Suitable for systems using 1MHz, 2 phase clocks.

KIM-4 MOTHERBOARD

The KIM-4 motherboard is designed to interface a single KIM-1 microcomputer with up to six system expansion modules. The motherboard also contains circuitry for buffering all appropriate system address, data, and control lines. A +5v regulator is included to provide power for the KIM-1 module from the system 8-10v D.C. unregulated power bus. A +12v regulator is provided for powering the KIM-1 audio cassette interface from user-supplied +15v.

Dimensions: 11.0" x 11.5" (see attached drawing) inclusive of connector tabs.

Connectors provided: (6) 44 pin female (similar to Vector R644) for expansion modules.

(2) 44 pin female connectors for interface to KIM-1.

(1) 44 pin male connector duplicating the function of KIM-1 application connector.

(1) 44 pin male with standard bus pinout for connection to expansion motherboard or backplane.

Expansion module pin connections: (See Diagram)

Power Connections:

+8v unregulated system power to be connected to motherboard jack and bussed to all expansion module connectors.

+15v and -15v (optional) to be connected to motherboard jack and bussed to all expansion module connectors. Regulator provided to derive +12v for audio cassette interface from user-supplied +15v.
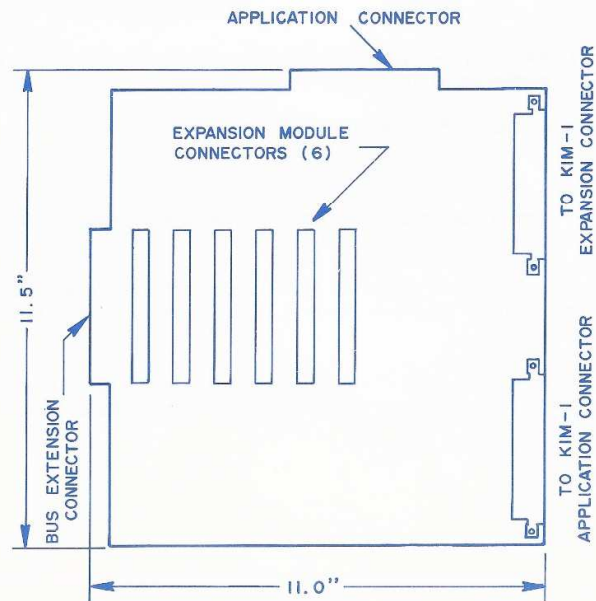
Note: +5v regulated is not bussed to expansion module connectors. Each module will have on-board regulators powered from the system +8v unregulated bus.

KIM-4
STANDARD BUS CONNECTIONS

1	GND		A	GND
2	B SYNC		B	BAB Ø
3	B RDY		C	BAB 1
4	B IRQ		D	BAB 2
5	− 15V		E	BAB 3
6	B NMI		F	BAB 4
7	IB RST		G	BAB 5
8	BDB 7		J	BAB 6
9	BDB 6		K	BAB 7
10	BDB 5		L	BAB 8
11	BDB 4		M	BAB 9
12	BDB 3		N	BAB 10
13	BDB 2		P	BAB 11
14	BDB 1		R	BAB 12
15	BDB Ø		S	BAB 13
16	BD SELECTED		T	BAB 14
17	+ 15V		U	BAB 15
18	$\overline{\text{DMA}}$		V	B Ø 2
19	+8v RAW DC		W	B R/W
20	+8v RAW DC		X	$\overline{\text{B Ø 2}}$
21	+5v		Y	+5
22	GND		Z	GND

* The "B" prefix indicates the same signal output by KIM-1 but buffered on the
motherboard. E.G. the B RDY line is the KIM-1 RDY line.

KIM − 4 MOTHERBOARD

APPLICATION CONNECTOR

EXPANSION MODULE CONNECTORS (6)

TO KIM−I EXPANSION CONNECTOR

TO KIM−I APPLICATION CONNECTOR

BUS EXTENSION CONNECTOR

11.5"

11.0"

MOS TECHNOLOGY, INC.
VALLEY FORGE CORPORATE CENTER (215) 666 7950
950 RITTENHOUSE ROAD, NORRISTOWN, PA 19401

PRODUCT

ANNOUNCEMENT

BULLETIN

SEPTEMBER 21, 1976

KIM RESIDENT ASSEMBLER/EDITOR

The KIM Resident Assembler/Editor is a complete system for entering, storing, editing and assembling programs for 650-X based processing systems. Although designed for use with the KIM system, the resident assembler/editor can be used on any 650-X based system.

Text - editor

A program for creating, editing and saving line-numbered text files stored in a random-access memory.

Functions supported are:

- Enter new text

- Delete text

- Find designated string in text

- Resequence line numbers

- List specified block of text

- Load text from paper tape or audio cassette

- Dump text to paper tape or audio cassette

- Transfer control to assembler

- Return to KIM monitor

- Clear text area

Features

- Line-number orientation for ease of use.

- Compatible with any 650X processor.

- Any command preceded by an "X" is passed to a user-specified routine. The user can create his own commands.

- Simple interface to paper tape or audio cassette files.

- User-specified location of text in memory. No restriction on location of text file; multiple text files may be stored in memory simultaneously.

- Length of text file limited only by available memory.

- Text files are completely relocatable.

- ROM-resident - no need to buy or reload RAM.

- Complete documentation provided.

Resident Assembler

A single-pass assembler which accepts the entire 650X instruction set. Source code may be memory or paper-tape resident. Object code is always written to memory.

Features

- Single pass provides source listing, object code and error messages.

- User may specify input and output device routines or accept TTY as default.

- All 650X instruction and addressing modes supported.

- User defines symbol table and source location for complete memory flexibility.

- ROM-resident.
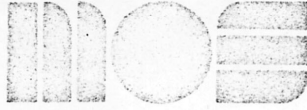
- Compatible with any 650 X based system.

Format

(3) MCS 6540 2K x 8 ROM's. Designed to be mounted on KIM-5 ROM expansion board.

Memory Location

Addresses E000 - F7FF

June 7, 1976

Dear KIM-1 Owner:

Now that you have had a chance to work with your KIM-1 microcomputer, you may be interested in wri'ing programs which require more than the 1K of RAM supplied with KIM-1.

In response to the requests of many KIM-1 users, we are happy to announce the availability of two new memory expansion boards: the KIM-2 (4K static RAM memory) and the KIM-3 (8K static RAM), each memory with the following features:

- Assembled, tested and burned-in - <u>Not A Kit</u>

- 90 Day Warranty on both parts and labor

- Complete documentation provided

- Allows expansion to 64K of memory

- On-board regulators - needs only 8-10 VDC at 1.5A (4K) or 3.0A (8K). Or supply your own +5v and bypass the regulator.

- All buffering and control logic included

- Guaranteed compatible with KIM-1

- RAM may be placed anywhere in memory space (switch selectable)

- High speed static memory chips (no memory slow-down)

- The same quality you've come to expect from MOS Technology, Inc.

A single KIM-2 or KIM-3 can be wired directly to your KIM-1. For multiple-board expansion, a motherboard, KIM-4 will soon be available.
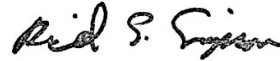
(over)

Both KIM-2 and KIM-3 shipments will begin August 16, 1976. Units will be shipped in the sequence that orders are received, so order now for early delivery. The KIM-2 is $179 and the KIM-3 is $298. Add $3.00 postage and handling for each unit ordered ($15.00 for International Orders).

KIM-2 and 3 are the first in a series of expansions we plan to introduce to insure that KIM remains the most powerful and affordable microcomputer available.

Sincerely,

Richard S. Simpson
Manager, KIM Product Support

Send your order to:

MOS Technology, Inc.
KIM
950 Rittenhouse Road
Norristown, Pennsylvania 19401

Yes, I want to expand my KIM memory.
Enclosed is my check or money order for:

_____ KIM-2 - 4K static memory at $179
      plus $3.00 shipping and handling.

_____ KIM-3 - 8K static memory at $298
      plus $3.00 shipping and handling.

Name _____

Address _____

City,State,ZIP _____