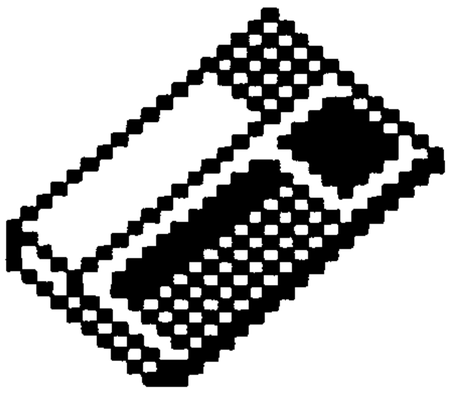

HUG

HOUSTON USERS' GROUP

MAY 1986

MEETING SCHEDULE

FIRST SUNDAY OF EVERY MONTH
(2nd Sunday if 1st Sunday is on a holiday weekend)

HUG TIBBS - (713) 475-8909
24-hour BULLETIN BOARD

****

THE NEXT MEETING IS ABOUT

The next meeting will be SUNDAY, MAY 4, 1986 at 2:00 P.M. The program will be a panel discussion of the many programming languages available for use on th TI 99/4A. The discussion will cover BASIC, EXTENDED BASIC, ASSEMBLY, FORTH & many others. Anyone who is having a hardware or software problem is urged to come to this meeting & ask questions regarding their problems. This question & answer session is planned as part of every meeting, so come & bring your problems or solutions.

****

IN THIS ISSUE

****

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****

SPRITE-TO-SPRITE COINCIDENCE IN ASSEMBLY LANGUAGE

By John Phillips

Many of you have written me wanting clues as to how sprite coincidence operates. To answer your questions, I have written a small program with a subroutine that checks for sprite coincidence. Feel free to use this subroutine in your own programs.

This program places two sprites on the screen and sets them in automotion towards each other. When the sprites collide to within 1 pixel of each other, they stop and the program waits for you to press a key. Once a key is pressed, the program starts over.

The subroutine is called with a Branch and Link statement. Following the **BL**, are 3 data statments. The first two give the sprite numbers to check, and the third is the pixel tolerance range. The program lists a tolerance of 1, which means the sprites must be within 1 pixel of each other to work. You, of course, may change this tolerance value to anything you like or need.

I have used this subroutine in countless programs (Hopper, Moonmine, Burgertime, etc.). This should do nicely for your programs as well!

John Phillips

```
     DEF HITIT
     REF VMBW,VSBW,VMBR,VSBR,KSCAN
*****************************************
* THIS IS AN EXAMPLE OF HOW TO SIMULATE
* THE "CALL COINC" STATMENT OF EXTENDED
* BASIC IN ASSEMBLY LANGUAGE. TO CALL *
* THIS ROUTINE, JUST:
*
*    BL @COINC  CALL SUBROUTINE
*    DATA 1,2   GIVE SPRITE NUMBERS
*    DATA 4     TOLERANCE PIXEL VALUE
*
* PLEASE REMEMBER THAT THE SPRITES ARE*
* NUMBERED 1 THROUGH 32 FOR THIS      *
* ROUTINE. A VALUE OF ZERO IS IGNORED.*
*****************************************
SAL    EQU >300          ATTRIBUTE LIST
SVT    EQU >780          VELOCITY TABLE
MOTION EQU >837A         NEED TO MOVE SPRITES
SDL    EQU >400          SPRITE DESCRIPTORS
KEYBRD EQU >8374         WHICH KEY UNIT TO SCAN
KEY    EQU >8375         RETURNED VALUE
*
SPRPAT DATA >007E,>7E7E,>7E7E,>7E00 SOLID SQUARE FOR SPRITE 1
       DATA >FF81,>8181,>8181,>81FF OPEN  SQAURE FOR SPRITE 2
*
SALINI DATA >6020,>800F  SAL DATA FOR SPRITE 1
       DATA >60E0,>8101  SAL DATA FOR SPRITE 2
       DATA >D0D0        DISABLE ALL OTHER SPRITES
SPRVEL DATA >0005,>00FA  X VELOCITIES
*
H00    BYTE >00
H01    BYTE >01
H02    BYTE >02          NUMBER OF SPRITES TO MOVE
HFF    BYTE >FF          NO KEY PRESS VALUE
*
       EVEN
*****************************************
* INITIALIZATIONS - GET SPRITES ON!!  *
```

```
*****************************************
HITIT  LIMI 0            DISABLE INTERRUPTS
       LWPI >8300        LOAD MY WORKSPACE
       LI R0,SDL         PLACE SPRITE PATTERNS
       LI R1,SPRPAT      POINT TO PATTERN DATA
       LI R2,16          ENOUGH FOR 2 SPRITES!
       BLWP @VMBW        NOW WE HAVE PATTERNS
*
       LI R0,SAL         NOW PUT SPRITES ON SCREEN
       LI R1,SALINI      POINT TO THE SAL DATA
       LI R2,9           2 SPRITES + DISABLER
       BLWP @VMBW        VOILA! SPRITES ON SCREEN
*
       LI R0,SVT         NOW SET IN MOTION TOWARDS EACH OTHER!
       LI R1,SPRVEL      POINT TO VELOCITY DATA
       LI R2,2           TWO BYTES!
       BLWP @VMBW        THERE GOES SPRITE 1!
       AI R0,4           NOW FOR SPRITE 2
       AI R1,2           POINT TO HIS VELOCITY DATA
       BLWP @VMBW        THERE GOES SPRITE 2!
*
       MOVB @H02,@MOTION WE HAVE TO SAY HOW MANY IN AUTOMOTION
       LIMI 2            AND TURN ON THE INTERRUPTS TO MOVE!
*
LOOP   BL @COINC         TEST COINCIDENCE
       DATA 2,1          SPRITE 2 VERSUS SPRITE 1
       DATA 1            ALLOW 1 PIXEL, ONLY FOR TOLERANCE
*
       JMP LOOP          WAIT UNTIL THEY HIT!
*****************************************
* SUBROUTINE TO TEST COINCIDENCE ON TWO
* SPRITES.                              *
*****************************************
COINC  MOV *R11+,R3      GET FIRST SPRITE
       JEQ NOCOS         ZERO NOT ALLOWED
       MOV *R11+,R4      GET SECOND SPRITE
       JEQ NOCOS         ZERO NOT ALLOWED
       MOV *R11+,R9      GET TOLERANCE
       JEQ NOCOS         ZERO NOT ALLOWED
       LIMI 0            DISABLE FOR VDP READ
*
       DEC R3            NOW MAKE ZERO BASED
       SLA R3,2          MULTIPLY BY 4
       AI R3,SAL         POINTS TO THIS SPRITE'S SAL
       MOV R3,R0         GET READY TO READ
       LI R1,5*2+>8300   READ Y,X INTO R5
       LI R2,2           READ Y,X BYTES
       BLWP @VMBR        HAVE THE FIRST SPRITE
*
       DEC R4            NOW MAKE ZERO BASED
       SLA R4,2          MULTIPLY BY 4
       AI R4,SAL         POINTS TO THIS SPRITE'S SAL
       MOV R4,R0         GET READY TO READ
       LI R1,7*2+>8300   READ Y,X INTO R7
       LI R2,2           READ Y,X BYTES
       BLWP @VMBR        HAVE THE SECOND SPRITE
       LIMI 2            ENABLE INTERRUPTS AGAIN
*
```

```
       AI R5,>0404       A7TE POSITION TO CENTER
       MOV R5,R6         COPY ITS Y,X
       SRL R5,8          Y IN 5
       ANDI R6,>00FF     X IN 6
*
       AI R7,>0404       ADJUST SPRITE POSITION TO CENTER
       MOV R7,R8         COPY ITS Y,X
       SRL R7,8          Y IN 7
       ANDI R8,>00FF     X IN 8
*
       S R5,R7           Y DELTA
       ABS R7            FORCE POSITIVE
       S R6,R8           X DELTA
       ABS R8            FORCE POSITIVE
       C R7,R9           WITHIN Y TOLERANCE?
       JH NOCOS          NO, SO NO COINCIDENCE
       C R8,R9           WITHIN X TOLERANCE?
       JH NOCOS          NO, SO NO COINCIDENCE
*
* AT THIS POINT, WE HAVE DETECTED A COINCIDENCE *
*
       MOVB @H00,@MOTION STOP SPRITES WHERE THEY ARE!
       MOVB @H00,@KEYBRD SCAN WHOLE KEYBOARD
WAIT   LIMI 0            DISABLE INTERRUPTS
       BLWP @KSCAN       AND SCAN
       LIMI 2            ENABLE AGAIN
       CB @KEY,@HFF      KEY DOWN?
       JEQ WAIT          NOT YET
       B @HITIT          YES, SO RESTART!
*
* AT THIS POINT, NO COINCIDENCE HAS BEEN DETECTED *
*
NOCOS  B *R11
*
       END HITIT         LOAD AND GO!
```

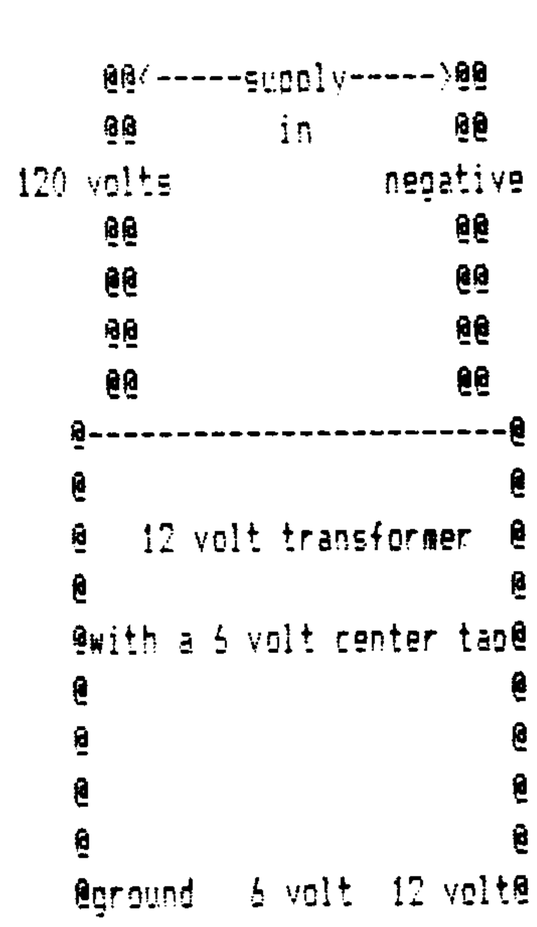
HOW TO BUILD A DISK DRIVE POWER SUPPLY

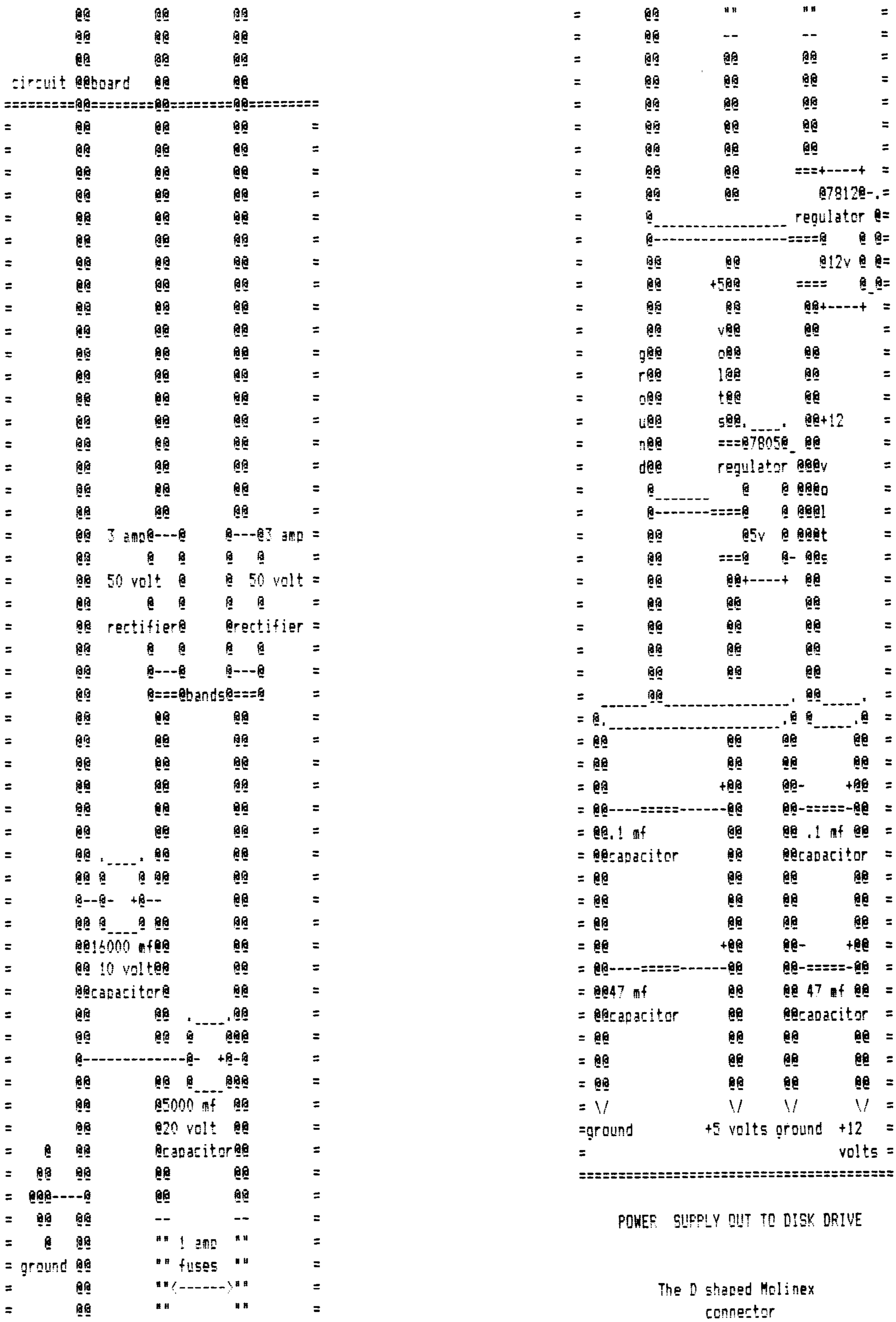
This is a simple power supply to use with a 5 1/4" floppy disk drive.

from John Burt Jug #25
(Johnson Space Center Users Group)

PARTS LIST

2 X 3AMP 50 VOLT (OR HIGHER)RECTIFIERS
1 X 120 VOLT TO 12 VOLT WITH A 6 VOLT CENTER TAP
1 X 14,000 MF CAPACITOR(OR HIGHER)
1 X 5,000 MF CAPACITOR(OR HIGHER)
2 X .1 MF CAPACITORS
2 X 45 MF CAPACITORS
1 X 7805 5 VOLT REGULATOR
1 X 7812 12 VOLT REGULATOR
1 X CIRCUIT BOARD SMALL ENOUGH TO FIT INSIDE YOUR DISK DRIVE CASE.
1 X MOLEX CONNECTOR FOR 110 VOLT POWER SUPPLY.
1 X MOLEX CONNECTOR FOR DISK DRIVE SUPPLY
2 X 1 AMP PIGTAIL INLINE FUSES




circuit board
3 amp rectifier bands
50 volt rectifier bands
16000 mf 10 volt capacitor
5000 mf 20 volt capacitor
1 amp fuses
ground
7812 regulator
7805 regulator
+5 volts
ground
+12 volts
.1 mf capacitor
47 mf capacitor
POWER SUPPLY OUT TO DISK DRIVE
The D shaped Molinex connector

```
          @ O @ <-- 12 VOLT
          @   @
          @ O @ <-- GROUND
          @   @
          @ O @ <-- GROUND
          @   @
          @ O @ <--  5 VOLT
          @___/
```

rear view of the disk drive

```
 ------------------------------
@/  / @                        @
@@  @o@ <-- 4 pins             @
@@  @o@     on the D shaped     @
@@  @o@     Molinex connector   @
@@  @o@                        @
@@__@/                         @
@                              @
@                              @
@    @ top pin = 12 volt       @
@    @ 2nd pin = ground        @
@    @ 3rd pin = ground        @
@    @ 4th pin =  5 volt       @
@                              @
@                              @
@                              @
@                              @
@                              @
@                              @
@                              @
@                              @
@------------------------------@
```

MORNING STAR SOFTWARE ANNOUNCES A NEW 128K RAM EXPANSION BOARD

By Scott Swenson

Morning Star's 128K Memory is dramatically different. It provides the missing link in the 99/4A memory environment. Now you may enjoy bank-switching up to 160K of memory - or more! Adequate space for ROM-resident control software. With 48K of direct access expansion box memory on-line, you have programming elbow-room. Keep your 32K in the PEB and use it - the 128K Memory is added on for a total of 160K. Leave your Foundation 128K in the PEB utilizing 96K for disk emulation and 160K for program memory. The potential for serious, leading-edge programming techniques is here!

Provides 16 banks of 8K or
9 banks of 16K plus your 32K for
40K/48K expansion RAM online
(64K total including VDP RAM)
160K/288K total expansion memory
Use with TI 32K or MYARC'S 128K or
Foundation's 128K memory (still
functions as disk emulator)
2 sockets for 8K/16K of EPROM
5 modes of operation

The board contains 128K of RAM plus sockets for two 8K ROM chips. Unlike substitute boards for the TI 32K Module, this board switches in either 8K or 16K in addition to the 32K board. Since it makes 40K or 48K available in the PEB at all times, it allows running larger programs than was formerly possible. The facility for "bank switching" 16K at a time while 32K remain "resident" affords true program overlay techniques in programs up to 160K long.

The Morning Star 128K memory expansion board is operated by selecting one (1) of six (6) software-controlled modes:

MODE 1 - 8K of ROM (type 2764 ultraviolet eraseable) is switched into the DSR space at >4000 to >5FFF and may be used to implement power-up and device service routines. CRU bit 0 enables and disables the ROM while CRU bit 4 selects the second 8K ROM for large DSR's. (See the Editor/Assembler manual for more information.)

MODE 2 - 8K of RAM (type 4164 dynamic) is switched into the DSR space instead of ROM. CRU bit 0 still enables and disables the RAM so that other devices' DSR's may be activated. CRU bits 4..7 select one of 16 RAM banks for code and data selection in very large programs.

MODE 3 - 8K of RAM is switched into the cartridge space, >6000 to >7FFF. CRU bits 4..7 again select one of 16 RAM banks to be made available to other devices' DSR's. The RAM remains accessible in the cartridge space at all times with this mode selected.

MODE 4 - The 8K of ROM #0 is switched into the DSR space, >4000 to >5FFF, while simultaneously 8K of RAM is switched into the cartridge space, >6000 to >7FFF. (This mode combines modes 1 and 3.) CRU bit 0 enables and disables the ROM, but leaves the RAM accessible. CRU bits 4..7 select one of 16 RAM banks to be made available to the DSR or other routine in the first on-board ROM.

MODE 5 - All 16K of ROM is switched simultaneously into the combination of DSR and cartridge spaces, >4000 to >7FFF. Programs then may make use of the FMX mechanism in the console ROM to access subroutines in any part of this 16K.

MODE 6 Any one of the eight 16K RAM segments may be made to appear in the combination of DSR and cartridge spaces, >4000 to >7FFF, instead of ROM. As in all modes, CRU bit 0 enables and disables the RAM in the DSR space, but the upper 8K remain accessible at all times with this mode selected. CRU bits 5..7 select the bank. Of course, none of the last four modes may be used while a cartridge is inserted.

32K of RAM (either TI or MYARC or Foundation 128K) MUST BE PRESENT to use the Morning Star 128K Memory. It allows the Foundation board to continue its disk emulation.

The board may be strapped to any of the standard CRU addresses for resolving conflicts in DSR assignments between third-party PEB modules. For systems without excessive power supply loading, two Morning Star 128K boards can be installed at separate CRU addresses for memory needs up to 256K. The Morning Star 128K RAM Expansion Board design includes full card edge signal buffering to continue the high standards found in TI's modules. We utilize the same clamshell case for quality and durability.

Requires PEB, 32K memory expansion (TI or Foundation 128K)

Loading programs requires: Extended BASIC cartridge OR Editor/Assembler cartridge OR CorComp disk controller OR on-board DSR EPROM (not provided)

Requires assembly language programming (not provided) for use with Extended BASIC.

Pric $199.00 plus shipping - MASTERCARD, VISA, and AMERICAN EXPRESS accepted - 128K Ram Board available from:

Morning Star Software
4325 S.W. 109th Ave.
Beaverton, OR 97005
(503) 646-4695

COMPUTERS

```
                        1                   2
   1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0
 1 S V D H S G Q M M S E X P A N S I O N F
 2 T S I E Z U E H I U K E Y B O A R D E X
 3 A S P M T M B T H B P C S I T I O N N C
 4 T P P U O Y V R U R P V H S H P L C I A
 5 E W R R I Q B O O O S U B P R O G R A M
 6 M J Y Q I G Z F F U A S S E M B L Y V Q
 7 E G D I R T R A C T T M O N I T O R M F
 8 N F A N I E E Q W I G I S C R E E N Y B
 9 T Y T B Q Y I S F N M R N W X N N P Y I
10 S G A N T S E J E E U H M E M R O Y K Y
```

WORD LIST:

SUBROUTINE	SUBROUTINE	SUBPROGRAM
POSITION	KEYBOARD	ASSEMBLY
SCREEN	FORTH	BYTE
STATEMENTS	CARTRIDGE	EXPANSION
SPRITES	MONITOR	MEMORY
DATA		

SOLUTION LIST:

WORD	ROW	COLUMN
SUBROUTINE	1	5
SUBPROGRAM	5	11
STATEMENTS	1	1
CARTRIDGE	7	9
EXPANSION	1	11
POSITION	3	11
KEYBOARD	2	11
ASSEMBLY	6	11
SPRITES	3	2
MONITOR	7	12
MEMORY	1	8
SCREEN	8	12
FORTH	6	8
BYTE	5	7
DATA	7	3

4161 **SET UP PRINT##XB** Printer rqd.
A fine program by G.C. Serafin that will preset many of the print features on your Gemini 10 or 15. 33 sectors

5233 **DIZZY FINGERS##XB**
Fantastic music by Paul Templar. Great bar room piano set to a very lively tempo. 49 sectors

5234 **DIE GOTTERDAMMERUNG##XB**
A classical piece by Richard Wagner that has been translated to TI Extended Basic by Ken Gilliland. Very pretty music and graphics. 140 sectors

HUG LIBRARY CATALOG ADDENDUM
April 1986

0186 **PATSCRAM MISSION##XB** Joysticks optional
A cute space game by Patrick Strassen. Guide your spaceship through various obstacles to safety. Instruction file included. 48 sectors

0187 **TEX-BOUNCE##XB** Joysticks optional
A "Freeware" program by Funnelweb Farm. A cute game where you guide your puck through an obstacle course by bouncing off the barriers. Comes with instructions. 96 sectors

0188 **CRYPTO##XB** Printer rqd.
This program will help you solve cryptograms by printing out the various words from the possible combinations. 12 sectors

1076 **J P GRAPHICS##XB** Printer optional
An excellent graphics program written by Jean-Pierre Morin. Program is written in Forth and loaded through Extended Basic. Documentation can be printed out with TI-Writer.
REQUIRES 1 DSSD DISK OR 2 SSSD DISKS 720 sectors

NEW DESCRIPTION OF PROGRAM 4113 & 4118

4113 **HBMPRINT##FORTH##XB OR EA MODULE & HBM MODULE REQUIRED.** Printer required
A Freeware program by Bob Lawson to print the files created by TI's Household Budget Management Module. Written in Forth & extremely fast. Allows printing to printer or disk for editing by TI-Writer. Now loads from either Extended Basic or Editor Assembler. Documentation on disk under files name READ-ME. Use TI-Writer or E/A Module to print out. **REQUIRES DEDICATED DISK** 358 sectors

4118 **FUNNELWEB WRITE##XB** Printer rqd.
New revised Version 3.2 with many new and helpful features. Has many new utility features. 360 sectors

4154 **COLIST##XB** Printer rqd.
A Screen Image lister that will print out TI-Writer files and reformat them. Has several print options. Another Funnelweb Farm "Freeware" program. 139 sectors

4155 **DISK MANAGER 99##XB##E/A##Mini-Memory**
A "Freeware" program by Mike Dodd. This disk manager resides in memory and can b accessed by a "CALL LINK" statement. Has all of the functions of a regular disk manager. Programs can be called up from either command mode or program mode. 271 sectors

4156 **BERT & ERNIE##XB** Speech Synthesizer
A cute talking and graphics program with Sesame Street's own Bert & Ernie. Great for kids. 39 sectors

4157 **DISK MATCH##XB**
This "Freeware" program,written by David B. Garrett, will check 2 disks for matching programs and show you which programs are duplicated on the disks. Comes with complete documentation. 49 sectors

4158 **AUTO-DIALER##XB**
An auto dial program that can be used with Fast-Term,P-Term, and TE-Plus. 13 sectors

4159 **DOCU-GRAM##XB** Printer rqd.
A program by Brad Hearn that will turn DV/80 program files into formatted documents. Comes with complete instructions. 25 sectors

4160 **FREEZER##Multiplan** Printer rqd.
A Multiplan file by Scott Medbury that will help you keep an inventory of what is in your freezer. 24 sectors

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