The 80386 I-Cache board is a full-sized (13.8" x 12.025") motherboard
which took all of its memory as DRAM plugged into a proprietary 32-bit
memory card. There are two versions of the I-Cache board, identified by
part numbers 09-00010, and 09-00021, which are silk-screened on the
component (top) side of the motherboard.

The most common memory card used with the I-Cache board is the M500. This
is part number 09-00011. The upper left corner has "385 Memory Board"
silk-screened on many M500 cards.


```
+=============================+
+                             +
+ MOTHERBOARD SWITCH SETTINGS +
+                             +
+   * = Default setting       +
+=============================+
```

1 Reserved   *On

2 80387 Coprocessor installed   On
   80387 Coprocessor not installed   *Off

3 Bus speed selection (see below)

4 Bios relocation enabled   *On
   Bios relocation disabled   Off

5 Reserved   *Off

6 Color video adapter   *On
   Monochrome video adapter   Off

7 Cache enabled   *On
   Cache disabled   Off

8 Bus speed selection (see below)

Bus speed selection

```
              Switch settings  --  * = default
         ---------------------------------------------
Board   SW1.3=OFF    SW1.3=ON     SW1.3=ON     SW1.3=OFF
Speed   SW1.8=OFF    SW1.8=OFF    SW1.8=ON     SW1.8=ON
-----   ---------    ---------    ---------    ---------
20MHz   5 Mhz        6.66 Mhz     10 Mhz *     Undefined

25MHz   6.25 Mhz     8.33 Mhz*    12.5 Mhz     Undefined

33MHz   8.33 Mhz*    11.33 Mhz    16.66 Mhz    Undefined
```


```
+=============================+
+                             +
+ MOTHERBOARD JUMPER SETTINGS +
+                             +
+=============================+
```


J1 Keyboard connector

J2 External 6-volt battery connector
   Pin 1 - Battery Positive
   Pin 2 - no connector
   Pin 3 - Ground

```
    Pin 4 - Ground

J21  Keylock / Power LED
  Pin 1 - Power LED signal
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Keyboard lock signal
  Pin 5 - Ground

J22  External speaker
  Pin 1 - Speaker
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - +5 volts

J25  External Keyboard connector
  Pin 1 - Keyboard clock
  Pin 2 - Keyboard data
  Pin 3 - no connector
  Pin 4 - Ground
  Pin 5 - +5V DC

W1  Reset switch
  Pin 1 - Signal
  Pin 2 - Ground

W7  Co-processor configuration
  Pins 1-2        Asynchronous Operation
  No connection   Synchronous Operation

W8  Co-processor configuration
  Pins 1-2        Asynchronous Operation
  No connection   Synchronous Operation

W9  Turbo light connector
  Pin 1 - Signal
  Pin 2 - Ground

W12  Cache configuration
  Pins 1-2        Direct mapped (32KB)
  No connection   Two-way set associative (64KB)

W13  Cache configuration
  Pins 1-2   Direct mapped (32KB)
  Pins 2-3   Two-way set associative (64KB)

W15 Turbo switch
  Pin 1 - Signal
  Pin 2 - Ground

W22  Non-cacheable region selection
  Pins 1-2        E00000 - EFFFFF non-cacheable
  No connection   D00000 - DFFFFF non-cacheable

W23  Reserved
  No connection

W30  Reserved
  Pins 2-3


+==============+
+              +
+ MEMORY CARDS +
+              +
+==============+
```

```
M500 memory card:
==================

There is a bank of eight (8) switches in the upper left corner of the
M500 memory card.  They should be set as follows:

        SW1.1  SW1.2  SW1.3  SW1.4  SW1.5  SW1.6  SW1.7  SW1.8
  1MB   ON     OFF    ON     ON     ON     OFF    OFF    OFF
  2MB   OFF    ON     ON     ON     ON     OFF    OFF    OFF
  4MB   ON     ON     OFF    OFF    ON     OFF    OFF    OFF
  5MB   OFF    OFF    OFF    ON     ON     OFF    OFF    OFF
  8MB   OFF    ON     OFF    OFF    ON     OFF    OFF    OFF
 12MB   OFF    OFF    OFF    OFF    ON     OFF    OFF    OFF (with 4M-08)
 16MB   OFF    OFF    OFF    OFF    ON     OFF    OFF    OFF (with 4M-08)

Recommended memory chips
------------------------
Hyundai    HY53C256LS-80   256Kx1 page mode DRAM

Toshiba    TC511000P-85    1Mx1 page mode DRAM
Samsung    KM41C1000P-80   1Mx1 page mode DRAM
Motorola   MCM511000P-85   1Mx1 page mode DRAM
Siemens    HYB511000-70    1Mx1 page mode DRAM
Siemens    HYB511000-85    1Mx1 page mode DRAM
Intel      P21010-08       1Mx1 page mode DRAM
Samsung    KM41C1000P-80   1Mx1 page mode DRAM

4M-08 memory expansion board:
=============================

The 4M-08 provides an additional 4MB (expandable to 8MB) for the M500
memory card.  There is a bank of four (4) switches on the card.  The M500
must be filled with 8MB before the 4M-08 will function.

With the M500:
--------------

        S1    S2    S3    S4
12MB    OFF   ON    OFF   OFF
16MB    OFF   ON    ON    OFF

This document is for the full-sized (13.8" x 12.025") 80386-16 motherboard.
It's identifying features are: an LED between expansion slots #5 and #6; a
proprietary memory card slot #7; a bank of eight switches between slot #1
and the keyboard connector; four ROM sockets; 8-bit slots for #2 and #6;
16-bit slots for #1, #3, #4, #5, and #8; and a socket for an 80287 math
coprocessor next to the CPU.

The bus speed for this motherboard is fixed at 8MHz.


+============================+
+                            +
+ MOTHERBOARD SWITCH SETTINGS +
+                            +
+    * = Default setting      +
+============================+

1  Reserved                        *On

2  80287 Coprocessor installed        On
   80287 Coprocessor not installed    *Off
   80387 Coprocessor installed        On

3  4 Mhz 80287 Coprocessor installed   On
   8 Mhz 80287 Coprocessor installed  *Off
   10 Mhz 80287 Coprocessor installed  Off
```

```
4  Bios relocation enabled          *On
   Bios relocation disabled          Off

5  Reserved                         *Off

6  Color video adapter              *On
   Monochrome video adapter          Off

7  See below                         ---

8  Reserved                         *Off


If the M100C, or M400C memory card is installed, then switch 7 is
defined as follows:

7  Cache enabled  *On
   Cache disabled  Off

If the M100, M200, or M300 memory card is installed, then switch 7 is
defined as follows:

7  Reserved   *Off



+=============================+
+                             +
+ MOTHERBOARD JUMPER SETTINGS +
+                             +
+=============================+


J1  External 6-volt battery connector
  Pin 1 - Battery Positive
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Ground

J21  Keylock / Power LED
  Pin 1 - Power LED signal
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Keyboard lock signal
  Pin 5 - Ground

J22  External speaker
  Pin 1 - Speaker
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - +5 volts

W1  Reset switch
  Pin 1 - Signal
  Pin 2 - Ground

W4  ROM size
  Pin 1-2  128KB
  Pin 2-3  256KB

W5  Reserved - always installed

W6  Memory card type
  Pin 1-2  Static column memory card
  Pin 2-3  Cache memory card


+==============+
```

```
+               +
+ MEMORY CARDS +
+               +
+==============+


M100 memory card:
=================


The M100 memory card can hold 1MB or 2MB.  The first MB is usually soldered
on the board.  This is the card that was most commonly used by CompuAdd.

NOTE:  All of the memory on the M100 must be static column DRAM (as opposed
       to page mode DRAM) in order for the 2M-08, or 4M-08 to operate.

There is a row of nine (9) jumper pins in the lower left corner of the
M100 memory card.  They should be positioned as follows:

 1MB  Pin 2-3, Pin 4-5, Pin 7-8
 2MB  Pin 1-2, Pin 4-5, Pin 7-8
 4MB  Pin 1-2, Pin 4-5, Pin 7-8  (with 2M-08)
 6MB  Pin 1-2, Pin 4-5, Pin 7-8  (with 4M-08)
10MB  Pin 1-2, Pin 4-5, Pin 7-8  (with 4M-08)


Recommended memory chips for the second MB
------------------------------------------
Hitachi     HM51258P-8      256Kx1 static column DRAM
Hitachi     HM51258P-10     256Kx1 static column DRAM
Hitachi     HM51258P-12     256Kx1 static column DRAM
NMB         AAA2800P-07     256Kx1 static column DRAM
NMB         AAA2800P-08     256Kx1 static column DRAM
NMB         AAA2800P-10     256Kx1 static column DRAM
Panasonic   MN41256A-08     256Kx1 page mode DRAM (see note above)
Hyundai     HY53C256LS-80   256Kx1 page mode DRAM (see note above)
NMB         AAA2801P-08     256Kx1 page mode DRAM (see note above)
NMB         AAA2801P-10     256Kx1 page mode DRAM (see note above)


M200 memory card:
=================


The M200 memory card can hold 4MB or 8MB using 1Mx1 DRAM.  The top two rows
of chips make up bank 0, and the bottow two rows make up bank 1.

There is a set of five (5) two-pin jumpers in the lower left corner of the
M200 memory card.  They should be set as follows:

        W1    W2    W3    W4    W5
 4MB    ON    ON    OFF   OFF   OFF
 8MB    OFF   ON    OFF   OFF   OFF
12MB    OFF   OFF   OFF   OFF   OFF  (with 4M-08)
16MB    OFF   OFF   OFF   OFF   OFF  (with 4M-08)

Recommended memory chips
-----------------------
Toshiba     TC511000P-85    1Mx1 page mode DRAM
Toshiba     TC511000P-10    1Mx1 page mode DRAM
Samsung     KM41C1000P-10   1Mx1 page mode DRAM
Samsung     KM41C1000P-80   1Mx1 page mode DRAM
Mitsubishi  M5M4100AP       1Mx1 page mode DRAM
Motorola    MCM511000P-10   1Mx1 page mode DRAM
Motorola    MCM511000P-85   1Mx1 page mode DRAM
Siemens     HYB511000-85    1Mx1 page mode DRAM
Siemens     HYB511000-70    1Mx1 page mode DRAM
Intel       P21010-08       1Mx1 page mode DRAM
Intel       P21010-10       1Mx1 page mode DRAM
```

```
M300 memory card:
==================

The M300 memory card can hold 1MB, 2MB, or 6MB.  Each of the first two MB
is made up of four (4) 256Kx1, and eight (8) 256Kx4 chips.  The lower
four rows of chips hold 1Mx1 chips, and must be filled in completely.  It
is not possible to partially fill the lower bank of memory.

There is a bank of eight (8) switches in the upper left corner of the
M300 memory card.  They should be set as follows:

        SW1.1   SW1.2   SW1.3   SW1.4   SW1.5   SW1.6   SW1.7   SW1.8
  1MB   OFF     OFF     OFF     OFF     ON      ON      OFF     ON
  2MB   OFF     OFF     ON      OFF     ON      ON      OFF     ON
  6MB   OFF     ON      ON      OFF     ON      ON      OFF     ON
 10MB   ON      ON      ON      OFF     ON      ON      OFF     ON   (with 4M-08)
 14MB   ON      ON      ON      OFF     ON      ON      OFF     ON   (with 4M-08)

Recommended memory chips
------------------------
Hyundai     HY53C256LS-10    256Kx1 page mode DRAM
Hyundai     HY53C256LS-80    256Kx1 page mode DRAM
NMB         AAA2801P-07      256Kx1 page mode DRAM
NMB         AAA2801P-08      256Kx1 page mode DRAM

OKI         M514256-10       256Kx4 page mode DRAM
Fujitsu     MB81C4256-10P    256Kx4 page mode DRAM
Siemens     HYB514256A-80    256Kx4 page mode DRAM
Samsung     KM44C256AP-80    256Kx4 page mode DRAM

Toshiba     TC511000P-10     1Mx1 page mode DRAM
Toshiba     TC511000P-85     1Mx1 page mode DRAM
NEC         D421000C-80      1Mx1 page mode DRAM
Motorola    MCM511000P-10    1Mx1 page mode DRAM
Motorola    MCM511000P-85    1Mx1 page mode DRAM
Samsung     KM41C1000P-10    1Mx1 page mode DRAM
Siemens     HYB511000-85     1Mx1 page mode DRAM
Siemens     HYB511000-70     1Mx1 page mode DRAM
Mitsubishi  M5M4100AP        1Mx1 page mode DRAM


M100C memory card:
==================

The M100C memory card can hold 1MB or 2MB.  It has an Austek cache
controller in the lower left corner of the card.  It accommodates either
the 2M-08, or the 4M-08.

NOTE:  Static column DRAM (as opposed to page mode DRAM) is recommended when
       using either the 2M-08, or the 4M-08.

There are two jumpers on the M100C memory card.  W1 is in the upper left
corner, and W3 is in the lower left corner.  They should be set as follows:

        W1         W3
  1MB   Pin 1-2    ON
  2MB   Pin 2-3    ON
  4MB   Pin 2-3    ON   (with 2M-08)
  6MB   Pin 2-3    ON   (with 4M-08)
 10MB   Pin 2-3    ON   (with 4M-08)

Recommended memory chips
------------------------
Hitachi     HM51258P-8    256Kx1 static column DRAM
NMB         AAA2800P-07   256Kx1 static column DRAM
NMB         AAA2800P-08   256Kx1 static column DRAM
Panasonic   MN41256A-08   256Kx1 page mode DRAM (see note above)
Sharp       LH21256-08    256Kx1 page mode DRAM (see note above)
```

```
NMB          AAA2801P-06  256Kx1 page mode DRAM (see note above)
NMB          AAA2801P-08  256Kx1 page mode DRAM (see note above)
```

M400C memory card:
==================

The M400C memory card can hold 4MB or 8MB. It has an Austek cache
controller in the lower left corner. The M400C cannot accommodate either
of the memory expansion cards, as it has no connectors.

There are two jumpers on the M400C memory card. W1 is in the upper left
corner, and W3 is in the lower left corner. They should be set as follows:

```
     W1         W3
4MB  Pin 1-2    ON
8MB  Pin 2-3    ON
```

Recommended memory chips

```
NEC        D421000C-80    1Mx1 page mode DRAM
Motorola   MCM511000P-85  1Mx1 page mode DRAM
Siemens    HYB511000-70   1Mx1 page mode DRAM
Siemens    HYB511000-85   1Mx1 page mode DRAM
Intel      P21010-08      1Mx1 page mode DRAM
Samsung    KM41C1000P-80  1Mx1 page mode DRAM
```

2M-08 memory expansion board:
=============================

The 2M-08 provides an additional 2MB, and is compatible with the M100, and
M100C memory cards. It is not compatible with the M200, the M300, or the
M400C. The 2M-08 comes populated, and has no jumpers or switches to set.

4M-08 memory expansion board:
=============================

The 4M-08 provides an additional 4MB (expandable to 8MB) for the M100, M200,
M300, and M100C memory cards. It is not compatible with the M400C. There
is a bank of four (4) switches on the card. The settings differ for each
of the main memory boards.

Recommended memory chips

Use the tables above for the 1Mx1 page mode DRAM used for the appropriate
main memory card.

With the M100:

```
       S1    S2    S3    S4
 6MB   ON    OFF   OFF   OFF
10MB   ON    OFF   ON    OFF
```

With the M200:

```
       S1    S2    S3    S4
12MB   OFF   ON    OFF   OFF
16MB   OFF   ON    ON    OFF
```

With the M300:

```
        S1    S2    S3    S4
10MB    ON    ON    OFF   OFF
14MB    ON    ON    ON    OFF


With the M100C:
---------------


        S1    S2    S3    S4
 6MB    ON    OFF   OFF   OFF
10MB    ON    OFF   ON    OFF
```

This document is for the full-sized (13.8" x 12.025") 80386-20 motherboard.
It's identifying features are: an LED between expansion slots 5 and 6; a
proprietary memory card slot as the seventh slot; a bank of eight switches
between slot 1 and the keyboard connector; four ROM sockets; 8-bit slots
for #2 and #6; 16-bit slots for #1, #3, #4, #5, and #8; and a socket
for an 80287 math coprocessor next to the CPU.

The bus speed for this motherboard is fixed at 10MHz. Peripherals which
do not support this higher bus speed may have difficulties running on this
20MHz motherboard.

```
+=============================+
+                             +
+ MOTHERBOARD SWITCH SETTINGS +
+                             +
+   * = Default setting       +
+=============================+
```

1 Reserved   *On

2 80287 Coprocessor installed   On
   80287 Coprocessor not installed   *Off
   80387 Coprocessor installed   On

3 4 Mhz 80287 Coprocessor installed   On
   8 Mhz 80287 Coprocessor installed *Off
   10 Mhz 80287 Coprocessor installed Off

4 Bios relocation enabled   *On
   Bios relocation disabled   Off

5 Reserved   *Off

6 Color video adapter   *On
   Monochrome video adapter   Off

7 See below   ---

8 Reserved   *Off

If the M100C, or M400C memory card is installed, then switch 7 is
defined as follows:

7 Cache enabled *On
   Cache disabled Off

If the M100, M200, or M300 memory card is installed, then switch 7 is
defined as follows:

7 Reserved   *Off


```
+=============================+
+                             +
```

```
+ MOTHERBOARD JUMPER SETTINGS +
+                             +
+=============================+


J1  External 6-volt battery connector
  Pin 1 - Battery Positive
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Ground

J21  Keylock / Power LED
  Pin 1 - Power LED signal
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Keyboard lock signal
  Pin 5 - Ground

J22  External speaker
  Pin 1 - Speaker
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - +5 volts

W1  Reset switch
  Pin 1 - Signal
  Pin 2 - Ground

W4  ROM size
  Pin 1-2  128KB
  Pin 2-3  256KB

W5  Reserved - always installed

W6  Memory card type
  Pin 1-2  Static column memory card
  Pin 2-3  Cache memory card


+==============+
+             +
+ MEMORY CARDS +
+             +
+==============+


M100 memory card:
=================

The M100 memory card can hold 1MB or 2MB.  The first MB is usually soldered
on the board.  This is the card that was most commonly used by CompuAdd.

NOTE:  All of the memory on the M100 must be static column DRAM (as opposed
       to page mode DRAM) in order for the 2M-08, or 4M-08 to operate.

There is a row of nine (9) jumper pins in the lower left corner of the
M100 memory card.  They should be positioned as follows:

 1MB  Pin 2-3, Pin 4-5, Pin 7-8
 2MB  Pin 1-2, Pin 4-5, Pin 7-8
 4MB  Pin 1-2, Pin 4-5, Pin 7-8  (with 2M-08)
 6MB  Pin 1-2, Pin 4-5, Pin 7-8  (with 4M-08)
10MB  Pin 1-2, Pin 4-5, Pin 7-8  (with 4M-08)

Recommended memory chips for the second MB
------------------------------------------
Hitachi     HM51258P-8     256Kx1 static column DRAM
NMB         AAA2800P-07    256Kx1 static column DRAM
```

```
NMB           AAA2800P-08   256Kx1 static column DRAM
NMB           AAA2801P-06   256Kx1 page mode DRAM (see note above)



M200 memory card:
=================

The M200 memory card can hold 4MB or 8MB using 1Mx1 DRAM.  The top two rows
of chips make up bank 0, and the bottow two rows make up bank 1.

There is a set of five (5) two-pin jumpers in the lower left corner of the
M200 memory card.  They should be set as follows:

        W1    W2    W3    W4    W5
  4MB   ON    ON    OFF   OFF   OFF
  8MB   OFF   ON    OFF   OFF   OFF
 12MB   OFF   OFF   OFF   OFF   OFF   (with 4M-08)
 16MB   OFF   OFF   OFF   OFF   OFF   (with 4M-08)

Recommended memory chips
------------------------
Toshiba     TC511000P-85    1Mx1 page mode DRAM
NEC         D421000C-80     1Mx1 page mode DRAM
Samsung     KM41C1000P-80   1Mx1 page mode DRAM
Motorola    MCM511000P-85   1Mx1 page mode DRAM
Siemens     HYB511000-85    1Mx1 page mode DRAM
Siemens     HYB511000-70    1Mx1 page mode DRAM
Intel       P21010-08       1Mx1 page mode DRAM


M300 memory card:
=================

The M300 memory card can hold 1MB, 2MB, or 6MB.  Each of the first two MB
is made up of four (4) 256Kx1, and eight (8) 256Kx4 chips.  The lower
four rows of chips hold 1Mx1 chips, and must be filled in completely.  It
is not possible to partially fill the lower bank of memory.

There is a bank of eight (8) switches in the upper left corner of the
M300 memory card.  They should be set as follows:

        SW1.1  SW1.2  SW1.3  SW1.4  SW1.5  SW1.6  SW1.7  SW1.8
  1MB   OFF    OFF    OFF    OFF    ON     ON     OFF    ON
  2MB   OFF    OFF    ON     OFF    ON     ON     OFF    ON
  6MB   OFF    ON     ON     OFF    ON     ON     OFF    ON
 10MB   ON     ON     ON     OFF    ON     ON     OFF    ON    (with 4M-08)
 14MB   ON     ON     ON     OFF    ON     ON     OFF    ON    (with 4M-08)

Recommended memory chips
------------------------
Hyundai     HY53C256LS-80    256Kx1 page mode DRAM
NMB         AAA2801P-07      256Kx1 page mode DRAM
NMB         AAA2801P-08      256Kx1 page mode DRAM

Siemens     HYB514256A-80    256Kx4 page mode DRAM
Samsung     KM44C256AP-80    256Kx4 page mode DRAM

Toshiba     TC511000P-85     1Mx1 page mode DRAM
NEC         D421000C-80      1Mx1 page mode DRAM
Motorola    MCM511000P-85    1Mx1 page mode DRAM
Siemens     HYB511000-85     1Mx1 page mode DRAM
Siemens     HYB511000-70     1Mx1 page mode DRAM
Intel       P21010-08        1Mx1 page mode DRAM


M100C memory card:
==================
```

The M100C memory card can hold 1MB or 2MB. It has an Austek cache
controller in the lower left corner of the card. It accommodates either
the 2M-08, or the 4M-08.

NOTE: Static column DRAM (as opposed to page mode DRAM) is recommended when
       using either the 2M-08, or the 4M-08.

There are two jumpers on the M100C memory card. W1 is in the upper left
corner, and W3 is in the lower left corner. They should be set as follows:

```
        W1         W3
 1MB  Pin 1-2   ON
 2MB  Pin 2-3   ON
 4MB  Pin 2-3   ON  (with 2M-08)
 6MB  Pin 2-3   ON  (with 4M-08)
10MB  Pin 2-3   ON  (with 4M-08)
```

Recommended memory chips

```
Hitachi     HM51258P-8   256Kx1 static column DRAM
NMB         AAA2800P-07  256Kx1 static column DRAM
NMB         AAA2800P-08  256Kx1 static column DRAM
Panasonic   MN41256A-08  256Kx1 page mode DRAM (see note above)
Sharp       LH21256-08   256Kx1 page mode DRAM (see note above)
NMB         AAA2801P-06  256Kx1 page mode DRAM (see note above)
NMB         AAA2801P-08  256Kx1 page mode DRAM (see note above)
```

M400C memory card:
==================

The M400C memory card can hold 4MB or 8MB. It has an Austek cache
controller in the lower left corner. The M400C cannot accommodate either
of the memory expansion cards, as it has no connectors.

There are two jumpers on the M400C memory card. W1 is in the upper left
corner, and W3 is in the lower left corner. They should be set as follows:

```
       W1         W3
4MB  Pin 1-2   ON
8MB  Pin 2-3   ON
```

Recommended memory chips

```
NEC        D421000C-80    1Mx1 page mode DRAM
Motorola   MCM511000P-85  1Mx1 page mode DRAM
Siemens    HYB511000-70   1Mx1 page mode DRAM
Siemens    HYB511000-85   1Mx1 page mode DRAM
Intel      P21010-08      1Mx1 page mode DRAM
Samsung    KM41C1000P-80  1Mx1 page mode DRAM
```

2M-08 memory expansion board:
=============================

The 2M-08 provides an additional 2MB, and is compatible with the M100, and
M100C memory cards. It is not compatible with the M200, the M300, or the
M400C. The 2M-08 comes populated, and has no jumpers or switches to set.

4M-08 memory expansion board:
=============================

The 4M-08 provides an additional 4MB (expandable to 8MB) for the M100, M200,
M300, and M100C memory cards. It is not compatible with the M400C. There
is a bank of four (4) switches on the card. The settings differ for each
of the main memory boards.

```
Recommended memory chips
------------------------
Use the tables above for the 1Mx1 page mode DRAM chips used for the
appropriate main memory card.

With the M100:
--------------


        S1   S2   S3   S4
 6MB    ON   OFF  OFF  OFF
10MB    ON   OFF  ON   OFF


With the M200:
--------------


        S1   S2   S3   S4
12MB    OFF  ON   OFF  OFF
16MB    OFF  ON   ON   OFF


With the M300:
--------------


        S1   S2   S3   S4
10MB    ON   ON   OFF  OFF
14MB    ON   ON   ON   OFF


With the M100C:
---------------

         S1   S2   S3   S4
 6MB     ON   OFF  OFF  OFF
10MB     ON   OFF  ON   OFF
```

This document is for the baby-sized (13.3" x 8.5") 80386-16 motherboard.
It's identifying features are: an LED between expansion slots #5 and #6; a
proprietary memory card slot #7; a bank of eight switches between slot #1
and the keyboard connector; two ROM sockets; 8-bit slots for #2 and #5;
16-bit slots for #1, #3, #4, #6, and #8; and a socket for an 80387 math
coprocessor.

The bus speed for this motherboard is fixed at 8MHz.


```
+=============================+
+                             +
+ MOTHERBOARD SWITCH SETTINGS +
+                             +
+   * = Default setting       +
+=============================+
```

Settings for Award Bios version C3.04

```
1  Reserved                         *On

2  80387 Coprocessor installed       On
   80387 Coprocessor not installed  *Off

3  Reserved                         *Off

4  Bios relocation enabled          *On
   Bios relocation disabled          Off

5  Reserved                         *Off

6  Color video adapter              *On
```

```
   Monochrome video adapter          Off

7  Reserved                          *Off

8  Cache enabled (w/M100C or M400C)   On
   Cache disabled                    Off


Settings for Phoenix Bios version 1.10 03
------------------------------------------
1  Reserved                          *On

2  80387 Coprocessor installed        On
   80387 Coprocessor not installed   *Off

3  Cache enabled (w/M100C or M400C)   On
   Cache disabled                    Off

4  Bios relocation enabled           *On
   Bios relocation disabled          Off

5  Reserved                          *Off

6  Color video adapter               *On
   Monochrome video adapter          Off

7  Reserved                          *Off

8  Reserved                          *Off


Settings for Phoenix Bios version 1.10 05 and later
---------------------------------------------------
1  Reserved                          *On

2  80387 Coprocessor installed        On
   80387 Coprocessor not installed   *Off

3  Reserved                          *Off

4  Bios relocation enabled           *On
   Bios relocation disabled          Off

5  Reserved                          *Off

6  Color video adapter               *On
   Monochrome video adapter          Off

7  Cache enabled (w/M100C or M400C)   On
   Cache disabled                    *Off

8  Reserved                          *Off



+=============================+
+                             +
+ MOTHERBOARD JUMPER SETTINGS +
+                             +
+=============================+


J1  External 6-volt battery connector
   Pin 1 - Battery Positive
   Pin 2 - no connector
   Pin 3 - Ground
   Pin 4 - Ground
```

```
J21  Keylock / Power LED
  Pin 1 - Power LED signal
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Keyboard lock signal
  Pin 5 - Ground

J22  External speaker
  Pin 1 - Speaker
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - +5 volts

W1  Reset switch
  Pin 1 - Signal
  Pin 2 - Ground

W3  Reserved
  Pins 1-2

W9  Turbo LED
  Pin 1 - Signal
  Pin 2 - Ground

W10  Reserved
  No connector


+==============+
+              +
+ MEMORY CARDS +
+              +
+==============+


M100 memory card:
=================

The M100 memory card can hold 1MB or 2MB.  The first MB is usually soldered
on the board.

NOTE:  All of the memory on the M100 must be static column DRAM (as opposed
       to page mode DRAM) in order for the 2M-08, or 4M-08 to operate.

There is a row of nine (9) jumper pins in the lower left corner of the
M100 memory card.  They should be positioned as follows:

 1MB  Pin 2-3, Pin 4-5, Pin 7-8
 2MB  Pin 1-2, Pin 4-5, Pin 7-8
 4MB  Pin 1-2, Pin 4-5, Pin 7-8  (with 2M-08)
 6MB  Pin 1-2, Pin 4-5, Pin 7-8  (with 4M-08)
10MB  Pin 1-2, Pin 4-5, Pin 7-8  (with 4M-08)

Recommended memory chips for the second MB
------------------------------------------
Hitachi     HM51258P-8     256Kx1 static column DRAM
Hitachi     HM51258P-10    256Kx1 static column DRAM
Hitachi     HM51258P-12    256Kx1 static column DRAM
NMB         AAA2800P-07    256Kx1 static column DRAM
NMB         AAA2800P-08    256Kx1 static column DRAM
NMB         AAA2800P-10    256Kx1 static column DRAM
Panasonic   MN41256A-08    256Kx1 page mode DRAM (see note above)
Hyundai     HY53C256LS-80  256Kx1 page mode DRAM (see note above)
NMB         AAA2801P-08    256Kx1 page mode DRAM (see note above)
NMB         AAA2801P-10    256Kx1 page mode DRAM (see note above)


M200 memory card:
```

```
==================

The M200 memory card can hold 4MB or 8MB using 1Mx1 DRAM.  The top two rows
of chips make up bank 0, and the bottow two rows make up bank 1.

There is a set of five (5) two-pin jumpers in the lower left corner of the
M200 memory card.  They should be set as follows:

         W1    W2    W3    W4    W5
  4MB    ON    ON    OFF   OFF   OFF
  8MB    OFF   ON    OFF   OFF   OFF
 12MB    OFF   OFF   OFF   OFF   OFF   (with 4M-08)
 16MB    OFF   OFF   OFF   OFF   OFF   (with 4M-08)

Recommended memory chips
------------------------
Toshiba     TC511000P-85    1Mx1 page mode DRAM
Toshiba     TC511000P-10    1Mx1 page mode DRAM
Samsung     KM41C1000P-10   1Mx1 page mode DRAM
Samsung     KM41C1000P-80   1Mx1 page mode DRAM
Mitsubishi  M5M4100AP       1Mx1 page mode DRAM
Motorola    MCM511000P-10   1Mx1 page mode DRAM
Motorola    MCM511000P-85   1Mx1 page mode DRAM
Siemens     HYB511000-85    1Mx1 page mode DRAM
Siemens     HYB511000-70    1Mx1 page mode DRAM
Intel       P21010-08       1Mx1 page mode DRAM
Intel       P21010-10       1Mx1 page mode DRAM


M300 memory card:
=================

The M300 memory card can hold 1MB, 2MB, or 6MB.  Each of the first two MB
is made up of four (4) 256Kx1, and eight (8) 256Kx4 chips.  The lower
four rows of chips hold 1Mx1 chips, and must be filled in completely.  It
is not possible to partially fill the lower bank of memory.

There is a bank of eight (8) switches in the upper left corner of the
M300 memory card.  They should be set as follows:

        SW1.1  SW1.2  SW1.3  SW1.4  SW1.5  SW1.6  SW1.7  SW1.8
  1MB   OFF    OFF    OFF    OFF    ON     ON     OFF    ON
  2MB   OFF    OFF    ON     OFF    ON     ON     OFF    ON
  6MB   OFF    ON     ON     OFF    ON     ON     OFF    ON
 10MB   ON     ON     ON     OFF    ON     ON     OFF    ON   (with 4M-08)
 14MB   ON     ON     ON     OFF    ON     ON     OFF    ON   (with 4M-08)

Recommended memory chips
------------------------
Hyundai     HY53C256LS-10   256Kx1 page mode DRAM
Hyundai     HY53C256LS-80   256Kx1 page mode DRAM
NMB         AAA2801P-07     256Kx1 page mode DRAM
NMB         AAA2801P-08     256Kx1 page mode DRAM

OKI         M514256-10      256Kx4 page mode DRAM
Fujitsu     MB81C4256-10P   256Kx4 page mode DRAM
Siemens     HYB514256A-80   256Kx4 page mode DRAM
Samsung     KM44C256AP-80   256Kx4 page mode DRAM

Toshiba     TC511000P-10    1Mx1 page mode DRAM
Toshiba     TC511000P-85    1Mx1 page mode DRAM
NEC         D421000C-80     1Mx1 page mode DRAM
Motorola    MCM511000P-10   1Mx1 page mode DRAM
Motorola    MCM511000P-85   1Mx1 page mode DRAM
Samsung     KM41C1000P-10   1Mx1 page mode DRAM
Siemens     HYB511000-85    1Mx1 page mode DRAM
Siemens     HYB511000-70    1Mx1 page mode DRAM
Mitsubishi  M5M4100AP       1Mx1 page mode DRAM
```

```
M100C memory card:
==================

The M100C memory card can hold 1MB or 2MB.  It has an Austek cache
controller in the lower left corner of the card.  It accommodates either
the 2M-08, or the 4M-08.

NOTE:  Static column DRAM (as opposed to page mode DRAM) is recommended when
       using either the 2M-08, or the 4M-08.

There are two jumpers on the M100C memory card.  W1 is in the upper left
corner, and W3 is in the lower left corner.  They should be set as follows:

        W1          W3
 1MB  Pin 1-2    ON
 2MB  Pin 2-3    ON
 4MB  Pin 2-3    ON  (with 2M-08)
 6MB  Pin 2-3    ON  (with 4M-08)
10MB  Pin 2-3    ON  (with 4M-08)


Recommended memory chips
------------------------
Hitachi     HM51258P-8   256Kx1 static column DRAM
NMB         AAA2800P-07  256Kx1 static column DRAM
NMB         AAA2800P-08  256Kx1 static column DRAM
Panasonic   MN41256A-08  256Kx1 page mode DRAM (see note above)
Sharp       LH21256-08   256Kx1 page mode DRAM (see note above)
NMB         AAA2801P-06  256Kx1 page mode DRAM (see note above)
NMB         AAA2801P-08  256Kx1 page mode DRAM (see note above)


M400C memory card:
==================

The M400C memory card can hold 4MB or 8MB.  It has an Austek cache
controller in the lower left corner.  The M400C cannot accommodate either
of the memory expansion cards, as it has no connectors.

There are two jumpers on the M400C memory card.  W1 is in the upper left
corner, and W3 is in the lower left corner.  They should be set as follows:

        W1          W3
4MB  Pin 1-2    ON
8MB  Pin 2-3    ON

Recommended memory chips
------------------------
NEC         D421000C-80     1Mx1 page mode DRAM
Motorola    MCM511000P-85   1Mx1 page mode DRAM
Siemens     HYB511000-70    1Mx1 page mode DRAM
Siemens     HYB511000-85    1Mx1 page mode DRAM
Intel       P21010-08       1Mx1 page mode DRAM
Samsung     KM41C1000P-80   1Mx1 page mode DRAM


2M-08 memory expansion board:
=============================

The 2M-08 provides an additional 2MB, and is compatible with the M100, and
M100C memory cards.  It is not compatible with the M200, the M300, or the
M400C.  The 2M-08 comes populated, and has no jumpers or switches to set.



4M-08 memory expansion board:
=============================
```

The 4M-08 provides an additional 4MB (expandable to 8MB) for the M100, M200, M300, and M100C memory cards. It is not compatible with the M400C. There is a bank of four (4) switches on the card. The settings differ for each of the main memory boards.

Recommended memory chips

Use the tables above for the 1Mx1 page mode DRAM used for the appropriate main memory card.

With the M100:

```
        S1    S2    S3    S4
 6MB    ON    OFF   OFF   OFF
10MB    ON    OFF   ON    OFF
```

With the M200:

```
        S1    S2    S3    S4
12MB    OFF   ON    OFF   OFF
16MB    OFF   ON    ON    OFF
```

With the M300:

```
        S1    S2    S3    S4
10MB    ON    ON    OFF   OFF
14MB    ON    ON    ON    OFF
```

With the M100C:

```
         S1    S2    S3    S4
 6MB     ON    OFF   OFF   OFF
10MB     ON    OFF   ON    OFF
```

This document is for the baby-sized (13.3" x 8.5") 80386-16 motherboard. It's identifying features are: an LED between expansion slots #5 and #6; a proprietary memory card slot #7; a bank of eight switches between slot #1 and the keyboard connector; two ROM sockets; 8-bit slots for #2 and #5; 16-bit slots for #1, #3, #4, #6, and #8; and a socket for an 80387 math coprocessor.

The bus speed for this motherboard is fixed at 8MHz.


```
+=============================+
+                             +
+ MOTHERBOARD SWITCH SETTINGS +
+                             +
+   * = Default setting       +
+=============================+
```

Settings for Award Bios version C3.04
----
1 Reserved   *On

2 80387 Coprocessor installed   On
   80387 Coprocessor not installed   *Off

3 Reserved   *Off

4 Bios relocation enabled   *On

```
        Bios relocation disabled            Off

5   Reserved                             *Off

6   Color video adapter                  *On
    Monochrome video adapter              Off

7   Reserved                             *Off

8   Cache enabled (w/M100C or M400C)      On
    Cache disabled                        Off


Settings for Phoenix Bios version 1.10 03
------------------------------------------
1   Reserved                             *On

2   80387 Coprocessor installed           On
    80387 Coprocessor not installed     *Off

3   Cache enabled (w/M100C or M400C)      On
    Cache disabled                        Off

4   Bios relocation enabled              *On
    Bios relocation disabled              Off

5   Reserved                             *Off

6   Color video adapter                  *On
    Monochrome video adapter              Off

7   Reserved                             *Off

8   Reserved                             *Off


Settings for Phoenix Bios version 1.10 05 and later
---------------------------------------------------
1   Reserved                             *On

2   80387 Coprocessor installed           On
    80387 Coprocessor not installed     *Off

3   Reserved                             *Off

4   Bios relocation enabled              *On
    Bios relocation disabled              Off

5   Reserved                             *Off

6   Color video adapter                  *On
    Monochrome video adapter              Off

7   Cache enabled (w/M100C or M400C)      On
    Cache disabled                       *Off

8   Reserved                             *Off



+==============================+
+                              +
+ MOTHERBOARD JUMPER SETTINGS  +
+                              +
+==============================+


J1  External 6-volt battery connector
```

```
  Pin 1 - Battery Positive
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Ground

J21  Keylock / Power LED
  Pin 1 - Power LED signal
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Keyboard lock signal
  Pin 5 - Ground

J22  External speaker
  Pin 1 - Speaker
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - +5 volts

W1  Reset switch
  Pin 1 - Signal
  Pin 2 - Ground

W3  Reserved
  Pins 1-2

W9  Turbo LED
  Pin 1 - Signal
  Pin 2 - Ground

W10  Reserved
  No connector


+==============+
+              +
+ MEMORY CARDS +
+              +
+==============+


M100 memory card:
=================

The M100 memory card can hold 1MB or 2MB.  The first MB is usually soldered
on the board.

NOTE:  All of the memory on the M100 must be static column DRAM (as opposed
       to page mode DRAM) in order for the 2M-08, or 4M-08 to operate.

There is a row of nine (9) jumper pins in the lower left corner of the
M100 memory card.  They should be positioned as follows:

 1MB  Pin 2-3, Pin 4-5, Pin 7-8
 2MB  Pin 1-2, Pin 4-5, Pin 7-8
 4MB  Pin 1-2, Pin 4-5, Pin 7-8  (with 2M-08)
 6MB  Pin 1-2, Pin 4-5, Pin 7-8  (with 4M-08)
10MB  Pin 1-2, Pin 4-5, Pin 7-8  (with 4M-08)

Recommended memory chips for the second MB
------------------------------------------
Hitachi     HM51258P-8     256Kx1 static column DRAM
Hitachi     HM51258P-10    256Kx1 static column DRAM
Hitachi     HM51258P-12    256Kx1 static column DRAM
NMB         AAA2800P-07    256Kx1 static column DRAM
NMB         AAA2800P-08    256Kx1 static column DRAM
NMB         AAA2800P-10    256Kx1 static column DRAM
Panasonic   MN41256A-08    256Kx1 page mode DRAM (see note above)
Hyundai     HY53C256LS-80  256Kx1 page mode DRAM (see note above)
```

```
NMB          AAA2801P-08   256Kx1 page mode DRAM (see note above)
NMB          AAA2801P-10   256Kx1 page mode DRAM (see note above)
```

M200 memory card:
=================

The M200 memory card can hold 4MB or 8MB using 1Mx1 DRAM. The top two rows
of chips make up bank 0, and the bottow two rows make up bank 1.

There is a set of five (5) two-pin jumpers in the lower left corner of the
M200 memory card. They should be set as follows:

```
        W1   W2   W3   W4   W5
  4MB   ON   ON   OFF  OFF  OFF
  8MB   OFF  ON   OFF  OFF  OFF
 12MB   OFF  OFF  OFF  OFF  OFF  (with 4M-08)
 16MB   OFF  OFF  OFF  OFF  OFF  (with 4M-08)
```

Recommended memory chips

```
Toshiba     TC511000P-85    1Mx1 page mode DRAM
Toshiba     TC511000P-10    1Mx1 page mode DRAM
Samsung     KM41C1000P-10   1Mx1 page mode DRAM
Samsung     KM41C1000P-80   1Mx1 page mode DRAM
Mitsubishi  M5M4100AP       1Mx1 page mode DRAM
Motorola    MCM511000P-10   1Mx1 page mode DRAM
Motorola    MCM511000P-85   1Mx1 page mode DRAM
Siemens     HYB511000-85    1Mx1 page mode DRAM
Siemens     HYB511000-70    1Mx1 page mode DRAM
Intel       P21010-08       1Mx1 page mode DRAM
Intel       P21010-10       1Mx1 page mode DRAM
```

M300 memory card:
=================

The M300 memory card can hold 1MB, 2MB, or 6MB. Each of the first two MB
is made up of four (4) 256Kx1, and eight (8) 256Kx4 chips. The lower
four rows of chips hold 1Mx1 chips, and must be filled in completely. It
is not possible to partially fill the lower bank of memory.

There is a bank of eight (8) switches in the upper left corner of the
M300 memory card. They should be set as follows:

```
       SW1.1  SW1.2  SW1.3  SW1.4  SW1.5  SW1.6  SW1.7  SW1.8
  1MB  OFF    OFF    OFF    OFF    ON     ON     OFF    ON
  2MB  OFF    OFF    ON     OFF    ON     ON     OFF    ON
  6MB  OFF    ON     ON     OFF    ON     ON     OFF    ON
 10MB  ON     ON     ON     OFF    ON     ON     OFF    ON   (with 4M-08)
 14MB  ON     ON     ON     OFF    ON     ON     OFF    ON   (with 4M-08)
```

Recommended memory chips

```
Hyundai     HY53C256LS-10    256Kx1 page mode DRAM
Hyundai     HY53C256LS-80    256Kx1 page mode DRAM
NMB         AAA2801P-07      256Kx1 page mode DRAM
NMB         AAA2801P-08      256Kx1 page mode DRAM

OKI         M514256-10       256Kx4 page mode DRAM
Fujitsu     MB81C4256-10P    256Kx4 page mode DRAM
Siemens     HYB514256A-80    256Kx4 page mode DRAM
Samsung     KM44C256AP-80    256Kx4 page mode DRAM

Toshiba     TC511000P-10     1Mx1 page mode DRAM
Toshiba     TC511000P-85     1Mx1 page mode DRAM
NEC         D421000C-80      1Mx1 page mode DRAM
Motorola    MCM511000P-10    1Mx1 page mode DRAM
```

```
Motorola     MCM511000P-85    1Mx1 page mode DRAM
Samsung      KM41C1000P-10    1Mx1 page mode DRAM
Siemens      HYB511000-85     1Mx1 page mode DRAM
Siemens      HYB511000-70     1Mx1 page mode DRAM
Mitsubishi   M5M4100AP        1Mx1 page mode DRAM
```

M100C memory card:
==================

The M100C memory card can hold 1MB or 2MB. It has an Austek cache
controller in the lower left corner of the card. It accommodates either
the 2M-08, or the 4M-08.

NOTE: Static column DRAM (as opposed to page mode DRAM) is recommended when
       using either the 2M-08, or the 4M-08.

There are two jumpers on the M100C memory card. W1 is in the upper left
corner, and W3 is in the lower left corner. They should be set as follows:

```
      W1         W3
 1MB  Pin 1-2    ON
 2MB  Pin 2-3    ON
 4MB  Pin 2-3    ON   (with 2M-08)
 6MB  Pin 2-3    ON   (with 4M-08)
10MB  Pin 2-3    ON   (with 4M-08)
```

Recommended memory chips

```
Hitachi     HM51258P-8    256Kx1 static column DRAM
NMB         AAA2800P-07   256Kx1 static column DRAM
NMB         AAA2800P-08   256Kx1 static column DRAM
Panasonic   MN41256A-08   256Kx1 page mode DRAM (see note above)
Sharp       LH21256-08    256Kx1 page mode DRAM (see note above)
NMB         AAA2801P-06   256Kx1 page mode DRAM (see note above)
NMB         AAA2801P-08   256Kx1 page mode DRAM (see note above)
```

M400C memory card:
==================

The M400C memory card can hold 4MB or 8MB. It has an Austek cache
controller in the lower left corner. The M400C cannot accommodate either
of the memory expansion cards, as it has no connectors.

There are two jumpers on the M400C memory card. W1 is in the upper left
corner, and W3 is in the lower left corner. They should be set as follows:

```
     W1         W3
4MB  Pin 1-2    ON
8MB  Pin 2-3    ON
```

Recommended memory chips

```
NEC         D421000C-80    1Mx1 page mode DRAM
Motorola    MCM511000P-85  1Mx1 page mode DRAM
Siemens     HYB511000-70   1Mx1 page mode DRAM
Siemens     HYB511000-85   1Mx1 page mode DRAM
Intel       P21010-08      1Mx1 page mode DRAM
Samsung     KM41C1000P-80  1Mx1 page mode DRAM
```

2M-08 memory expansion board:
=============================

The 2M-08 provides an additional 2MB, and is compatible with the M100, and
M100C memory cards. It is not compatible with the M200, the M300, or the
M400C. The 2M-08 comes populated, and has no jumpers or switches to set.

```
4M-08 memory expansion board:
=============================


The 4M-08 provides an additional 4MB (expandable to 8MB) for the M100, M200,
M300, and M100C memory cards.  It is not compatible with the M400C.  There
is a bank of four (4) switches on the card.  The settings differ for each
of the main memory boards.

Recommended memory chips
------------------------
Use the tables above for the 1Mx1 page mode DRAM used for the appropriate
main memory card.

With the M100:
--------------


        S1   S2   S3   S4
  6MB   ON   OFF  OFF  OFF
 10MB   ON   OFF  ON   OFF


With the M200:
--------------


        S1   S2   S3   S4
 12MB   OFF  ON   OFF  OFF
 16MB   OFF  ON   ON   OFF


With the M300:
--------------


        S1   S2   S3   S4
 10MB   ON   ON   OFF  OFF
 14MB   ON   ON   ON   OFF


With the M100C:
---------------


         S1   S2   S3   S4
  6MB    ON   OFF  OFF  OFF
 10MB    ON   OFF  ON   OFF
```

This document is for the baby-sized (13.3" x 8.5") 80386-25 non-caching motherboard.
It's identifying features are: an LED between expansion slots #5 and #6; eight 16-bit
expansion slots; eight sockets for SIMMs (two banks of 4 each); a socket for an 80387
coprocessor; one 32-bit memory expansion slot (to be used with the M800 or M810 memory
expansion card); the Micronics ASIC chipset (four chips).

The bus speed for this motherboard is fixed at 8MHz.


```
+=============================+
+                             +
+ MOTHERBOARD SWITCH SETTINGS +
+                             +
+   * = Default setting       +
+=============================+

1  Reserved                       *Off

2  80387 Coprocessor installed     On
   80387 Coprocessor not installed *Off

3  Reserved                       *On
```

```
4  Bios relocation enabled              *On
   Bios relocation disabled              Off

5  Reserved                             *Off

6  Color video adapter                  *On
   Monochrome video adapter              Off

7  Reserved                             *Off

8  Reserved                             *Off
```

```
+============================+
+                            +
+ MOTHERBOARD JUMPER SETTINGS +
+                            +
+============================+
```

```
J5  Keylock / Power LED
  Pin 1 - Power LED signal
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Keyboard lock signal
  Pin 5 - Ground

J9  External 6-volt battery connector
  Pin 1 - Battery Positive
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Ground

J701  External speaker
  Pin 1 - Speaker
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - +5 volts

W1  Reset switch
  Pin 1 - Signal
  Pin 2 - Ground

W4  Turbo LED
  Pin 1 - Signal
  Pin 2 - Ground

W5  Turbo switch
  Pin 1 - Signal
  Pin 2 - Ground

W98  Memory configuration
  Pin 1-2  Four 256Kx9 SIMMs installed in bank 0
  Pin 2-3  Four 1Mx9 SIMMs installed in bank 0

W100  Memory configuration
  Pin 1-2  Four 256Kx9 SIMMs installed in bank 1
  Pin 2-3  Four 1Mx9 SIMMs installed in bank 1
```

```
+==============+
+              +
+ MEMORY CARDS +
+              +
+==============+
```

```
M800 and M810 memory card:
==========================

Either of these memory cards may be used on this motherboard to allow 4MB or 8MB to be
added to the memory already installed on the motherboard.  There are eight SIMM sockets
on the memory card (two banks of 4 sockets), that will accept only 1Mx9 SIMMs.  There
are no switches or jumpers on the M800 or M810 to set.
This document is for the full-sized (13.3" x 12.025") 80386-33 caching motherboard.
It's
identifying features are: an LED between expansion slots #5 and #6; eight 16-bit
expansion
slots; sixteen sockets for SIMMs (four banks of 4); a socket for a Weitek 3167 or Intel
80387
coprocessor; the Micronics ASIC chipset (four chips); two 9-pin serial port connectors;
one
25-pin parallel port connector; one 16-bit IDE connector; one floppy connector.

The bus speed for this motherboard is fixed at 8MHz.


+============================+
+                            +
+ MOTHERBOARD SWITCH SETTINGS +
+                            +
+   * = Default setting      +
+============================+

    SW1
------------------------------------------
1  Reserved                      *On

2  80387 Coprocessor installed      On
   80387 Coprocessor not installed  *Off

3  Reserved                         Off

4  Bios relocation enabled       *On
   Bios relocation disabled        Off

5  Reserved                      *Off

6  Color video adapter           *On
   Monochrome video adapter        Off

7  Cache enabled                 *On
   Cache disabled                  Off

8  Reserved                         Off


    SW2
------------------------------------------
1  COM1 Enabled (3F8-3FF)         *On
   COM1 Disabled                    Off

2  COM2 Enabled (2F8-2FF)         *On
   COM2 Disabled                    Off

3  IDE interface enabled          *On
   IDE interface disabled           Off

4  Floppy controller enabled      *On
   Floppy controller disabled       Off

5  Primary Floppy address (3F0-3F7)  *On
   Secondary Floppy address (2F0-2F7)  Off
```

```
6  Parallel port setting (See below)

7  Parallel port setting (See below)

8  Reserved                              *On


Parallel port settings

SW2.6   SW2.7   Parallel Port   Address   IRQ
-----   -----   -------------   -------   ---
ON      ON          LPT1        378-37F    7
OFF     ON          LPT2        278-27F    5
ON      OFF         LPT1        3B8-3BF    7
OFF     OFF     Port disabled


+============================+
+                            +
+ MOTHERBOARD JUMPER SETTINGS +
+                            +
+============================+


J5  Keylock / Power LED
   Pin 1 - Power LED signal
   Pin 2 - no connector
   Pin 3 - Ground
   Pin 4 - Keyboard lock signal
   Pin 5 - Ground

J6  External keyboard connector
   Pin 1 - Keyboard clock
   Pin 2 - Keyboard data
   Pin 3 - no connector
   Pin 4 - Ground
   Pin 5 - +5 volts DC

J8  External speaker
   Pin 1 - Speaker
   Pin 2 - no connector
   Pin 3 - Ground
   Pin 4 - +5 volts DC

J9  External 6-volt battery connector
   Pin 1 - Battery Positive
   Pin 2 - no connector
   Pin 3 - Ground
   Pin 4 - Ground

J60 - Hard drive LED
   Pin 1 - Signal
   Pin 2 - Ground
   Pin 3 - Ground
   Pin 4 - Signal

W1  Reset switch
   Pin 1 - Signal
   Pin 2 - Ground

W2  Bios size
   Pin 1-2  512K
   Pin 2-3  256K (default)

W4  Turbo LED
   Pin 1 - Signal
   Pin 2 - Ground
```

```
W5  Turbo switch
  Pin 1 - Signal
  Pin 2 - Ground

W9  Non-cacheable region
  Pin 1-2        D00000-DFFFFF
  No connection  E00000-EFFFFF

W10  Base memory size
  Pin 1-2        512KB
  No connection  640KB (default)

W14  Cache configuration
  Pin 1-2        Direct map (32KB)
  No connection  Two-way set associative (64KB)

W15  Cache configuration
  Pin 1-2  Direct map (32KB)
  Pin 2-3  Two-way set associative (64KB)

W20  Reserved
  No connection

W500  Memory configuration
  Pin 1-2   256Kx9 SIMMs in Bank 0
  Pin 2-3   1Mx9 SIMMs in Bank 0

W501  Video BIOS cache
  No connection  Video BIOS non-cacheable
  Pin 1-2        Video BIOS cacheable

W510  Memory configuration
  Pin 1-2   256Kx9 SIMMs in Bank 1
  Pin 2-3   1Mx9 SIMMs in Bank 1

W603  Reserved
  Not installed

W604  Reserved
  Pin 1-2


A note on the Serial port connectors:
======================================
There are two common pin-outs for 9-pin serial connectors.  It is important to use the cables
supplied with this board.  If you do not have these original cables, make sure the cable is
configured as follows:

Motherboard        DB-9

  1   6        ---------------
  2   7        \ 1 2 3 4 5 /
  3   8         \ 6 7 8 9 /
  4   9          ---------
  5   .

The tenth pin is normally removed from the motherboard connector.
This document is for the Mport 325 and Mport 333 Portable computers.  This system is
based on the Intel 80386-25 and 80386-33 CPUs respectively.  It has a built-on video
system based on the Cirrus Logic video chipset.  It supports an external monitor, and
has one 16-bit slot, which can accommodate a 2/3 length card.  The backplane connector
is exposed, to allow access like a desktop case for the card.

Up to 8MB is supported inside the unit, using 1Mx9 SIMMs.  There are two serial and one
parallel port.  The parallel port connector can be used for a parallel device, or can
be used to connect an external floppy drive.
```
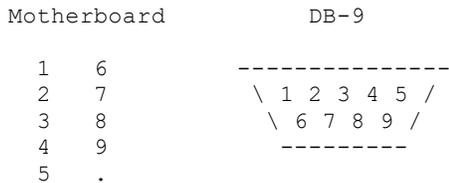
The units come with either a 40MB Alps drive, or a 120MB Conner drive installed. One
3.5" 1.44MB floppy drive comes installed.

The video card comes with drivers for Windows 3.0, but not Windows 3.1. The drivers
were written by Cirrus Logic. There are also drivers for AutoCAD release 10, GEM 3.x,
Ventura 2.0, Lotus 1-2-3 version 2.xx, and Lotus Symphony. The built-in display has
a 640x480 VGA Monochrome screen supporting 16 levels of gray.

```
+=====================+
+                     +
+  SWITCH SETTINGS    +
+                     +
+  * = Default setting +
+=====================+

SW1  Serial A enabled        *UP
     Serial A disabled        DOWN

SW2  Serial B enabled        *UP
     Serial B disabled        DOWN

SW3  PRT (parallel) enabled   *UP
     PRT (parallel) disabled   DOWN

SW4  Turns on LCD display     *UP
     Turns off LCD display    DOWN

SW5  80387 not installed      *UP
     80387 installed          DOWN

SW6  Video controller disable *DOWN

SW7  Speaker volume high       UP
     Speaker volume low       *DOWN
```

```
A/B/PRT switch settings
=======================
Switch      Drive A:   Drive B:   Printer
-----------------------------------------
LEFT        External   Internal   Disabled
            Floppy     Floppy
-----------------------------------------
MIDDLE      Internal   External   Disabled
            Floppy     Floppy
-----------------------------------------
RIGHT       Internal   N/A        Enabled  *!!!! DEFAULT
(Default)   Floppy
-----------------------------------------
```

```
Serial A and B Pin-outs
=======================
Pin   Signal   Description
---   ------   -----------
 1    DCD      Data carrier detect
 2    RXD      Receive data
 3    TXD      Transmit data
 4    DTR      Data terminal ready
 5    GND      Signal ground
 6    DSR      Data set ready
 7    RTS      Request to send
 8    CTS      Clear to send
 9    RI       Ring initiate
```

```
Parallel Port Pin-out
=====================
Pin   Signal   Description
---   ------   -----------
 1    STBP*    Strobe
 2    DP0      Data bit 0
 3    DP1      Data bit 1
 4    DP2      Data bit 2
 5    DP3      Data bit 3
 6    DP4      Data bit 4
 7    DP5      Data bit 5
 8    DP6      Data bit 6
 9    DP7      Data bit 7
10    ACKP*    Acknowledge
11    BUSYP    Busy
12    PEP      Out of paper
13    SLCTP    Printer selected
14    AFDP*    Auto feed
15    ERRD*    Error
16    INITP*   Initialize
17    SLINP    Select input
18    GND      Ground
19    GND      Ground
20    GND      Ground
21    GND      Ground
22    GND      Ground
23    GND      Ground
24    GND      Ground
25    GND      Ground


External Floppy Disk Drive Port
===============================
Pin   Signal       Description
---   ------       -----------
 1    N/C          No connection
 2    INDEX
 3    TRACK-00
 4    WR-PROTECT   Write protect
 5    RD-DATA      Read data
 6    DSKCHANG     Diskette change
 7    N/C          No connection
 8    N/C          No connection
 9    N/C          No connection
10    DRV2         Drive select 2
11    MOTOR2       Motor enable 2
12    WR-DATA      Write data
13    WR-GATE      Write enable
14    NLL          High density select
15    SIDE-1-SEL   Head 1 select
16    DIRECTION
17    STEP
18    GND          Ground
19    GND          Ground
20    GND          Ground
21    GND          Ground
22    GND          Ground
23    GND          Ground
24    GND          Ground
25    GND          Ground


External VGA Port
=================
Pin   Signal   Description
---   ------   -----------
```

```
  1    AR       Red
  2    AG       Green
  3    AB       Blue
  4    MS2      Monitor sense 2
  5    GND      Ground
  6    GND      Ground
  7    GND      Ground
  8    GND      Ground
  9    N/C      No connection
 10    GND      Ground
 11    MS0      Monitor sense 0
 12    MS1      Monitor sense 1
 13    HSYNC    Horizontal sync
 14    VSYNC    Vertical sync
 15    N/C      No connection
```

```
External Keyboard Port
======================
Pin     Signal   Description
---     ------   -----------
 1      KBCLK    Keyboard clock
 2      KEYDAT   Keyboard data
 3      N/C      No connection
 4      GND      Ground
 5      +5V      Power +5V
Shield  GND      Case ground
```

```
Game Port
=========
Pin   Signal     Description
---   ------     -----------
 1    +5VDC      +5V DC
 2    Button4    Button1 / Joystick1
 3    Position0  X-axis / Joystick1
 4    GND        Ground
 5
 6    Position1  Y-axis / Joystick1
 7    Button5    Button2 / Joystick1
 8    +5VDC      +5V DC
 9    +5VDC      +5V DC
10    Button6    Button1 / Joystick2
11    Position2  X-axis / Joystick2
12    GND        Ground
13    Position3  Y-axis / Joystick2
14    Button7    Button2 / Joystick2
15    +5VDC      +5V DC
```

```
Hot-key combinations
====================
Keystroke          Description
---------          -----------
<Ctrl><Alt><Del>   Warm boots the system

<Fn><F3> or
<Ctrl><Alt><F3>    Enters CMOS setup

<Fn><F4> or
<Ctrl><Alt><F4>    Toggles reverse video

<Fn><F6> or
<Ctrl><Alt><F6>    Toggles text mode attribute emulation

<Fn><F7> or
<Ctrl><Alt><F7>    Toggles bold font for intensified text
```

```
<Fn><F8> or
<Ctrl><Alt><F8>      Toggles expanded mode

<Fn><F9> or
<Ctrl><Alt><F9>      Toggles CPU speed between 6MHz, 8MHz, and Full-speed

<Fn><F10> or
<Ctrl><Alt><F10>     Toggles internal VGA add-in board

<Ctrl><Break>        Stops a software operation

<Ctrl><C>            Stops a software operation that you are currently performing

<Ctrl><S>            Pauses the screen output.  Press any other key to resume.

<Fn>                 Enables keypad overlay when held down

<Fn><Numlock>      Toggles numeric keypad on/off
```

This document is for the baby-sized (13.3" x 8.5") 80386SX-25 caching motherboard.
It's identifying features are: an LED between expansion slots #5 and #6;
six 16-bit expansion slots; eight sockets for SIMMs (four banks of 2); a socket for
an 80387SX coprocessor.

The bus speed for this motherboard is fixed at 8MHz.

```
+=============================+
+                             +
+ MOTHERBOARD JUMPER SETTINGS +
+                             +
+=============================+
```

J6 COM2

J8 COM1

J9 Parallel port

J19 IDE interface

J20 Floppy interface

J21 Hard disk LED

W1 Monitor type
  Not connected   Monochrome video card
  Pins 1-2   Color video card

W2 Reserved
  Not connected

W3 Reserved
  Not connected

W4 CMOS memory
  Pins 1-2   Battery backed-up CMOS (default)
  Pins 2-3   Clear CMOS memory

W5 Memory type
  Pins 2-3   4Mx9 SIMMs installed
  Pins 1-2 and 3-4   4Mx9 SIMMs not installed

W6 Reserved
  Not connected

P2 Reset switch
  Pin 1 - Signal

```
  Pin 2 - Ground

P3  External speaker
  Pin 1 - Speaker
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - +5 volts DC

P4  Keylock / Power LED
  Pin 1 - Power LED signal
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Keyboard lock signal
  Pin 5 - Ground
```

```
+=======================+
+                       +
+   MEMORY CONFIGURATION  +
+                       +
+=======================+
```

Listed below are the possible memory configurations

```
Size
 in    Bank   Bank   Bank   Bank
 MB     0      1      2      3
----------------------------------
 1.0   256K   256K
 1.5   256K   256K   256K
 2.0   256K   256K   256K   256K
 3.0   256K   256K   1MB
 4.0   1MB    1MB
 6.0   1MB    1MB    1MB
 8.0   1MB    1MB    1MB    1MB
 9.0   256K   256K   4MB
10.0   1MB    4MB
16.0   4MB    4MB
```

256K = Two 256Kx9 SIMMs in the bank
1MB = Two 1Mx9 SIMMs in the bank
4MB = Two 4Mx9 SIMMs in the bank
This document is for the mini-sized (23.0cm x 21.5cm) 386SX-25 non-cached motherboard.
The part number for this board is 09-00140-xx.

It's identifying features are: an LED between expansion slots #5 and #6; six 16-bit
expansion slots, and two 8-bit expansion slots; eight sockets for SIMMs (four banks of
2);
a socket for a 80387SX coprocessor.

The bus speed for this motherboard is fixed at 8MHz.

```
+=============================+
+                             +
+ MOTHERBOARD JUMPER SETTINGS +
+                             +
+=============================+
```

Jumper J2 is used to configure the battery backup method. To use the on-board battery,
place a jumper block connecting pins 2-3. If you wish to connect an external battery,
pin 1 is the battery positive lead, and pin 4 is for battery negative.

You can clear the contents of the CMOS memory by placing a jumper block connecting
pins 3-4, then turning on the power. Turn off the power, configure the jumper for
either the on-board or external battery, and turn the power back on. The system
will act as if it has never been turned on before.

```
JP2  Video type
  Pins 1-2        Color video card installed
  Not connected  Monochrome video card installed


+=======================+
+                       +
+   MEMORY CONFIGURATION  +
+                       +
+=======================+

Listed below are the possible memory configurations

Size
 in    Bank    Bank    Bank    Bank
 MB     0       1       2       3
---------------------------------
 0.5   256K
 1.0   256K    256K
 1.5   256K    256K    256K
 2.0   256K    256K    256K    256K
 2.0   1MB
 2.5   256K    1MB
 3.0   256K    256K    1MB
 4.0   1MB     1MB
 4.5   256K    1MB
 5.0   256K    1MB
 6.0   1MB     1MB     1MB
 8.0   1MB     1MB     1MB     1MB
 8.0   4MB
 8.5   256K    4MB
 9.0   256K    256K    4MB
10.0   1MB     4MB
12.0   1MB     1MB     4MB
16.0   4MB     4MB

256K = Two 256Kx9 SIMMs in the bank
1MB  = Two 1Mx9 SIMMs in the bank
4MB  = Two 4Mx9 SIMMs in the bank
This document is for the baby-sized (8.5" x 13.3") 386SX-20 and 386SX-25 non-cached
motherboard.  The part number for this board is 09-00105-xx.

It's identifying features are: an LED between expansion slots #5 and #6; six 16-bit
expansion slots, and two 8-bit expansion slots; eight sockets for SIMMs (four banks of
2);
a socket for a 80387SX coprocessor.

The bus speed for this motherboard is fixed at 8MHz.


+=============================+
+                             +
+ MOTHERBOARD JUMPER SETTINGS +
+                             +
+=============================+

J1  External keyboard connector
  Pin 1 - Keyboard clock
  Pin 2 - Keyboard data
  Pin 3 - no connector
  Pin 4 - Ground
  Pin 5 - +5 volts DC

J13  Monitor type
  Not connected   Color video card
  Connected       Monochrome video card

J14  Coprocessor configuration
```

```
  Pins 1-2         Coprocessor installed
  Not connected    Coprocessor not installed

J15  80386 Pipeline configuration
  Connected        80386 pipeline access
  Not connected    80386 non-pipeline access

J24  External 6-volt battery connector
  Pin 1 - Battery Positive
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Ground

J28  Turbo switch
  Pin 1 - Signal
  Pin 2 - Ground

J29  Turbo LED
  Pin 1 - Signal
  Pin 2 - Ground

J30  Reset switch
  Pin 1 - Signal
  Pin 2 - Ground

J31  External speaker
  Pin 1 - Speaker
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - +5 volts DC

J32  Keylock / Power LED
  Pin 1 - Power LED signal
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Keyboard lock signal
  Pin 5 - Ground



+=======================+
+                       +
+  MEMORY CONFIGURATION  +
+                       +
+=======================+

Listed below are the possible memory configurations

Size
 in    Bank    Bank    Bank    Bank
 MB     0       1       2       3
-----------------------------------
 0.5   256K
 1.0   256K    256K
 1.5   256K    256K    256K
 2.0   256K    256K    256K    256K
 2.0   1MB
 2.5   256K    1MB
 3.0   256K    256K    1MB
 4.0   1MB     1MB
 4.5   256K    1MB
 5.0   256K    1MB
 6.0   1MB     1MB     1MB
 8.0   1MB     1MB     1MB     1MB
 8.0   4MB
 8.5   256K    4MB
 9.0   256K    256K    4MB
10.0   1MB     4MB
```

```
12.0    1MB      1MB       4MB
16.0    4MB      4MB


256K = Two 256Kx9 SIMMs in the bank
1MB  = Two 1Mx9 SIMMs in the bank
4MB  = Two 4Mx9 SIMMs in the bank
This is the list of Switcher Functions for the Mpact laptop computers:

<Ctrl><Shift><A>  Toggle automap
<Ctrl><Shift><B>  Toggle bold
<Ctrl><Shift><C>  Toggle centering choices
<Ctrl><Shift><D>  Toggle between CRT and flat-panel display
<Ctrl><Shift><E>  Toggle between expanded and normal flat-panel display
<Ctrl><Shift><F>  Toggle between color and monochrome
<Ctrl><Shift><G>  Toggle reverse video in graphics
<Ctrl><Shift><R>  Toggle reverse video
<Ctrl><Shift><S>  Toggle screen power
<Ctrl><Shift><W>  Toggle flat-panel width-compression options


The program SWITCHER.COM must be executed prior to pressing any of the above
keystrokes.


CALL ATP    @408-732-7093
     EVEREX @
SANYO/FISCHER 310-537-5830 CUSTOMER SERVICE FOR PARTS
This document is for the baby-sized (13.3" x 8.5") 80386-25 and 80386-33 caching
motherboard.
It's identifying features are: an LED between expansion slots #5 and #6;
eight 16-bit expansion slots; four sockets for SIMMs (one bank of 4); a socket for
an 80387 coprocessor.

The bus speed for this motherboard is fixed at 8MHz.



+=============================+
+                             +
+ MOTHERBOARD SWITCH SETTINGS +
+                             +
+   * = Default setting       +
+=============================+

1  Reserved                        *On

2  80387 Coprocessor installed        On
   80387 Coprocessor not installed    *Off

3  Bus speed selection (see below)

4  Bios relocation enabled         *On
   Bios relocation disabled         Off

5  Reserved                        *Off

6  Color video adapter            *On
   Monochrome video adapter         Off

7  Cache enabled                   *On
   Cache disabled                   Off

8  Bus speed selection (see below)


Bus speed selection
-------------------

            Switch settings  --  * = default
       ------------------------------------------
Board   SW1.3=OFF    SW1.3=ON     SW1.3=ON     SW1.3=OFF
```

```
Speed     SW1.8=OFF     SW1.8=OFF     SW1.8=ON      SW1.8=ON
-----     ---------     ---------     ---------     ---------
25MHz     6.25 Mhz      8.33 Mhz*     12.5 Mhz      Undefined

33MHz     8.33 Mhz*     11.33 Mhz     16.66 Mhz     Undefined

WARNING!  Many cards are not able to run at a faster bus speed.


+=============================+
+                             +
+ MOTHERBOARD JUMPER SETTINGS +
+                             +
+=============================+


J5  Keylock / Power LED
  Pin 1 - Power LED signal
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Keyboard lock signal
  Pin 5 - Ground

J6  External keyboard connector
  Pin 1 - Keyboard clock
  Pin 2 - Keyboard data
  Pin 3 - no connector
  Pin 4 - Ground
  Pin 5 - +5 volts DC

J8  External speaker
  Pin 1 - Speaker
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - +5 volts DC

J9  External 6-volt battery connector
  Pin 1 - Battery Positive
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Ground

W1  Reset switch
  Pin 1 - Signal
  Pin 2 - Ground

W4  Turbo LED
  Pin 1 - Signal
  Pin 2 - Ground

W5  Turbo switch
  Pin 1 - Signal
  Pin 2 - Ground

W9  Non-cacheable region
  Pin 1-2         D00000-DFFFFF
  No connection  E00000-EFFFFF

W14  Cache configuration
  Pin 1-2         Direct map (32KB)
  No connection  Two-way set associative (64KB)

W15  Cache configuration
  Pin 1-2  Direct map (32KB)
  Pin 2-3  Two-way set associative (64KB)

W98  Memory configuration
  Pin 1-2  Four 1Mx9 SIMMs installed
```

```
   Pin 2-3  Four 256Kx9 SIMMs installed


+==============+
+             +
+ MEMORY CARDS +
+             +
+==============+


M710 memory card:
=================

This memory card may be used on this motherboard to allow up to 12MB to be added to
the memory already installed on the motherboard.  There are sixteen (16) SIMM sockets
on the memory card (four banks of 4 sockets).  The first two banks of memory can
accept 256Kx9 SIMMs, or 1Mx9 SIMMs.  The second two banks of memory can only accept
1Mx9 SIMMs.  The four banks of memory are numbered zero, one, two, and three.  Bank
zero on the M710 uses the same addresses as bank zero on the motherboard (the four
sockets on the motherboard).  Therefore, if the motherboard memory sockets are
populated, bank zero on the M710 must be left empty (or that memory will not be
recognized).

There are four jumpers on the M710, which configures the type of memory installed in
each of the four banks of memory.  They are set as follows:

W1  Pin 1-2  Four 1Mx9 SIMMs in bank 0  (or when empty)
    Pin 2-3  Four 256Kx9 SIMMs in bank 0

W2  Pin 1-2  Four 1Mx9 SIMMs in bank 1  (or when empty)
    Pin 2-3  Four 256Kx9 SIMMs in bank 1

W3  Pin 1-2  Four 1Mx9 SIMMs in bank 2  (or when empty)

W4  Pin 2-3  Four 1Mx9 SIMMs in bank 3  (or when empty)
```

This document is for the baby-sized (13.3" x 8.5") Baby Gemini 486-50 motherboard.
The part number for this board is 09-00125-xx.

It's identifying features are: an LED between expansion slots #5 and #6; eight 16-bit
expansion slots; eight sockets for SIMMs (two banks of 4); a socket for a Weitek 4167
coprocessor; one proprietary 32-bit slot which accommodates the M810 (a memory
expansion card with eight sockets for SIMMs).

The bus speed for this motherboard is fixed at 8MHz.

```
+=============================+
+                             +
+ MOTHERBOARD SWITCH SETTINGS +
+                             +
+   * = Default setting       +
+=============================+

SW1
---
1  Reserved            *Off
2  Reserved            *Off
3  Reserved            *On
4  Reserved            *Off
5  Reserved            *Off
6  Reserved            *Off
7  Reserved            *On
8  Reserved            *Off


SW2
---
1  Memory size (see below)
2  Memory size (see below)
```

```
3  Memory size (see below)
4  Memory size (see below)
5  Memory size (see below)

6  Reserved             *Off
7  Reserved             *Off

8  64K external cache    Off
   256K external cache   On
```

```
DIP switch settings for memory size
===================================
Memory        Banks            DIP Switch 2
------------------------------------------------------
 MB    0    1    2    3    S1   S2   S3   S4   S5
----   ---- ---- ---- ---- ---- ---- ---- ---- ----
 1MB   256K                ON   ON   ON   ON   ON
 2MB   256K 256K           OFF  ON   ON   ON   ON
 3MB   256K 256K 256K      ON   OFF  ON   ON   ON
 4MB   256K 256K 256K 256K OFF  OFF  ON   ON   ON
 4MB   1MB                 ON   ON   OFF  ON   ON
 5MB   256K 1MB            ON   ON   OFF  OFF  ON
 6MB   256K 256K 1MB       ON   OFF  ON   OFF  ON
 7MB   256K 256K 256K 1MB  OFF  ON   ON   OFF  ON
 8MB   1MB  1MB            OFF  ON   OFF  ON   ON
 9MB   256K 1MB  1MB       ON   OFF  OFF  OFF  ON
10MB   256K 256K 1MB  1MB  OFF  OFF  ON   OFF  ON
12MB   1MB  1MB  1MB       ON   OFF  OFF  ON   ON
13MB   256K 1MB  1MB  1MB  OFF  OFF  OFF  OFF  ON
16MB   1MB  1MB  1MB  1MB  OFF  OFF  OFF  ON   ON
16MB   4MB                 ON   ON   OFF  ON   OFF
20MB   1MB  4MB            ON   ON   OFF  OFF  OFF
24MB   1MB  1MB  4MB       ON   OFF  ON   OFF  OFF
28MB   1MB  1MB  1MB  4MB  OFF  ON   ON   OFF  OFF
32MB   4MB  4MB            OFF  ON   OFF  ON   OFF
36MB   1MB  4MB  4MB       ON   OFF  OFF  OFF  OFF
40MB   1MB  1MB  4MB  4MB  OFF  OFF  ON   OFF  OFF
48MB   4MB  4MB  4MB       ON   OFF  OFF  ON   OFF
52MB   1MB  4MB  4MB  4MB  OFF  OFF  OFF  OFF  OFF
64MB   4MB  4MB  4MB  4MB  OFF  OFF  OFF  ON   OFF
```

In the table above, 256K indicates that four 256Kx9 SIMMs are installed in the bank,
1MB indicates that four 1Mx9 SIMMs are installed in the bank, and 4MB indicates that
four 4Mx9 SIMMs are installed in the bank. The above shows all of the possible memory
configurations.

Please note that Bank 0 and Bank 1 are on the motherboard. Banks 2 and 3 are found on
the M810. Each bank consists of four SIMMs, and all four sockets within a bank must
be filled.

When installing more than 16MB of memory, BIOS relocation must be disabled. Bios
relocation copies the video Bios (C0000-C7FFF) and the system ROM Bios (F0000-FFFFF)
into
RAM. The motherboard adds 15MB to these addresses (F00000) to be able to differentiate
between the ROM and RAM. Enabling the relocation feature causes the memory above 16MB
to become non-contiguous and therefore inaccessible.

Micronics Computers has tested and verified the following memory brands:
Toshiba, Siemens, Mitsubishi, NEC

```
+=============================+
+                             +
+ MOTHERBOARD JUMPER SETTINGS +
+                             +
+=============================+
```

```
J11  External 6-volt battery connector
  Pin 1 - Battery Positive
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Ground

J23  External speaker
  Pin 1 - Speaker
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - +5 volts DC

J24  Keylock / Power LED
  Pin 1 - Power LED signal
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Keyboard lock signal
  Pin 5 - Ground

J100  Reserved
  Pins 1-2

J101  Reserved
  Pins 2-3

W3  External cache configuration
  Not installed - 64K
  Installed    - 256K

W4  External cache configuration
  Not installed - 64K
  Installed    - 256K

W5  Turbo LED
  Pin 1 - Signal
  Pin 2 - Ground

W6  Reset switch
  Pin 1 - Signal
  Pin 2 - Ground

W7  Turbo switch
  Pin 1 - Signal
  Pin 2 - Ground

W15  External cache configuration
  Pins 1-2 - 256K
  Pins 2-3 - 64K
```

This document is for the full-sized (13.8" x 12.025") 80486 ASIC ISA 486-33
motherboard.
The part number for this board is 09-00054-xx.

It's identifying features are: an LED between expansion slots #5 and #6; eight 16-bit
expansion slots; sixteen sockets for SIMMs (four banks of 4); a socket for a Weitek
4167
coprocessor.

The bus speed for this motherboard is fixed at 8MHz.

```
+=============================+
+                             +
+ MOTHERBOARD SWITCH SETTINGS +
+                             +
+   * = Default setting       +
```

```
+============================+

SW1
---
1  Reserved                 *Off
2  Reserved                 *Off
3  Reserved                 *Off
4  Reserved                 *Off
5  Reserved                 *Off
6  Reserved                 *Off

7  Video Bios cacheable     *Off
   Video Bios non-cacheable  On

8  Reserved                 *Off

SW2
---
1  Memory size (See below)
2  Memory size (See below)
3  Memory size (See below)
4  Memory size (See below)
5  Memory size (See below)

6  80ns DRAM installed   On
   70ns DRAM installed  *Off

7  64K or 256K cache     Off
   128K cache            On

8  64K cache             Off
   128K or 256K cache    On


DIP switch settings for memory size
===================================
Memory         Banks              DIP Switch 2
------------------------------------------------------
 MB    0    1    2    3    S1   S2   S3   S4   S5
----   ---- ---- ---- ---- ---- ---- ---- ---- ----
 1MB   256K                 ON   ON   ON   ON   ON
 2MB   256K 256K            OFF  ON   ON   ON   ON
 3MB   256K 256K 256K       ON   OFF  ON   ON   ON
 4MB   256K 256K 256K 256K  OFF  OFF  ON   ON   ON
 4MB   1MB                  ON   ON   OFF  ON   ON
 5MB   256K 1MB             ON   ON   OFF  OFF  ON
 6MB   256K 256K 1MB        ON   OFF  ON   OFF  ON
 7MB   256K 256K 256K 1MB   OFF  ON   ON   OFF  ON
 8MB   1MB  1MB             OFF  ON   OFF  ON   ON
 9MB   256K 1MB  1MB        ON   OFF  OFF  OFF  ON
10MB   256K 256K 1MB  1MB   OFF  OFF  ON   OFF  ON
12MB   1MB  1MB  1MB        ON   OFF  OFF  ON   ON
13MB   256K 1MB  1MB  1MB   OFF  OFF  OFF  OFF  ON
16MB   1MB  1MB  1MB  1MB   OFF  OFF  OFF  ON   ON
16MB   4MB                  ON   ON   OFF  ON   OFF
20MB   1MB  4MB             ON   ON   OFF  OFF  OFF
24MB   1MB  1MB  4MB        ON   OFF  ON   OFF  OFF
28MB   1MB  1MB  1MB  4MB   OFF  ON   ON   OFF  OFF
32MB   4MB  4MB             OFF  ON   OFF  ON   OFF
36MB   1MB  4MB  4MB        ON   OFF  OFF  OFF  OFF
40MB   1MB  1MB  4MB  4MB   OFF  OFF  ON   OFF  OFF
48MB   4MB  4MB  4MB        ON   OFF  OFF  ON   OFF
52MB   1MB  4MB  4MB  4MB   OFF  OFF  OFF  OFF  OFF
64MB   4MB  4MB  4MB  4MB   OFF  OFF  OFF  ON   OFF


In the table above, 256K indicates that four 256Kx9 SIMMs are installed in the bank,
1MB indicates that four 1Mx9 SIMMs are installed in the bank, and 4MB indicates that
four 4Mx9 SIMMs are installed in the bank.  The above shows all of the possible memory
```

configurations.

When installing more than 16MB of memory, BIOS relocation must be disabled. Bios
relocation copies the video Bios (C0000-C7FFF) and the system ROM Bios (F0000-FFFFF)
into
RAM. The motherboard adds 15MB to these addresses (F00000) to be able to differentiate
between the ROM and RAM. Enabling the relocation feature causes the memory above 16MB
to become non-contiguous and therefore inaccessible.

Micronics Computers has tested and verified the following memory brands:
Toshiba, Siemens, Mitsubishi, NEC


```
+============================+
+                            +
+ MOTHERBOARD JUMPER SETTINGS +
+                            +
+============================+
```

J13 External 6-volt battery connector
  Pin 1 - Battery Positive
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Ground

J30 External speaker
  Pin 1 - Speaker
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - +5 volts DC

J31 Keylock / Power LED
  Pin 1 - Power LED signal
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Keyboard lock signal
  Pin 5 - Ground

W4 Reserved
  Pins 1-2

W5 Cache configuration
  Installed   - 128K or 256K
  Not installed - 64K

W6 Cache configuration
  Installed   - 256K
  Not installed - 64K or 128K

W7 Reserved

W9 Turbo LED
  Pin 1 - Signal
  Pin 2 - Ground

W10 Reset switch
  Pin 1 - Signal
  Pin 2 - Ground

W11 Turbo switch
  Pin 1 - Signal
  Pin 2 - Ground

This document is for the baby-sized (13.3" x 8.5") Baby Gemini 386-33 motherboard.
The part number for this board is 09-00086-xx.

It's identifying features are: an LED between expansion slots #5 and #6; eight 16-bit
expansion slots; eight sockets for SIMMs (two banks of 4); a socket for a Weitek 3167

or Intel 80387 coprocessor; one proprietary 32-bit slot which accommodates the M810
(a memory expansion card with eight sockets for SIMMs).

The bus speed for this motherboard is fixed at 8MHz.


```
+=============================+
+                             +
+ MOTHERBOARD SWITCH SETTINGS +
+                             +
+   * = Default setting       +
+=============================+
```

SW1
---
1 Memory size (see below)
2 Memory size (see below)
3 Memory size (see below)
4 Memory size (see below)
5 Memory size (see below)
6 Reserved   *On
7 Reserved   *Off

8 33MHz system board   *On
   40MHz system board   Off

SW2
---
1 Reserved   *Off

2 33MHz system board   *On
   40MHz system board   Off

3 Reserved   *Off
4 Reserved   *Off
5 Reserved   *Off
6 Reserved   *Off
7 Reserved   *Off
8 Reserved   *Off

NOTE: The system board is configured at the factory for either the 80386-33 or
       the 80386-40. It is not possible to change the CPU by configuring the switches.

DIP switch settings for memory size
===================================

Memory	Banks				DIP Switch 1				
MB	0	1	2	3	S1	S2	S3	S4	S5
1MB	256K				ON	ON	ON	ON	ON
2MB	256K	256K			OFF	ON	ON	ON	ON
3MB	256K	256K	256K		ON	OFF	ON	ON	ON
4MB	256K	256K	256K	256K	OFF	OFF	ON	ON	ON
4MB	1MB				ON	ON	OFF	ON	ON
5MB	256K	1MB			ON	ON	OFF	OFF	ON
6MB	256K	256K	1MB		ON	OFF	ON	OFF	ON
7MB	256K	256K	256K	1MB	OFF	ON	ON	OFF	ON
8MB	1MB	1MB			OFF	ON	OFF	ON	ON
9MB	256K	1MB	1MB		ON	OFF	OFF	OFF	ON
10MB	256K	256K	1MB	1MB	OFF	OFF	ON	OFF	ON
12MB	1MB	1MB	1MB		ON	OFF	OFF	ON	ON
13MB	256K	1MB	1MB	1MB	OFF	OFF	OFF	OFF	ON
16MB	1MB	1MB	1MB	1MB	OFF	OFF	OFF	ON	ON
16MB	4MB				ON	ON	OFF	ON	OFF
20MB	1MB	4MB			ON	ON	OFF	OFF	OFF
24MB	1MB	1MB	4MB		ON	OFF	ON	OFF	OFF
28MB	1MB	1MB	1MB	4MB	OFF	ON	ON	OFF	OFF

```
32MB    4MB   4MB                    OFF  ON   OFF  ON   OFF
36MB    1MB   4MB   4MB              ON   OFF  OFF  OFF  OFF
40MB    1MB   1MB   4MB   4MB        OFF  OFF  ON   OFF  OFF
48MB    4MB   4MB   4MB              ON   OFF  OFF  ON   OFF
52MB    1MB   4MB   4MB   4MB        OFF  OFF  OFF  OFF  OFF
64MB    4MB   4MB   4MB   4MB        OFF  OFF  OFF  ON   OFF
```

In the table above, 256K indicates that four 256Kx9 SIMMs are installed in the bank,
1MB indicates that four 1Mx9 SIMMs are installed in the bank, and 4MB indicates that
four 4Mx9 SIMMs are installed in the bank. The above shows all of the possible memory
configurations.

Please note that Bank 0 and Bank 1 are on the motherboard. Banks 2 and 3 are found on
the M810. Each bank consists of four SIMMs, and all four sockets within a bank must
be filled.

When installing more than 16MB of memory, BIOS relocation must be disabled. Bios
relocation copies the video Bios (C0000-C7FFF) and the system ROM Bios (F0000-FFFFF)
into
RAM. The motherboard adds 15MB to these addresses (F00000) to be able to differentiate
between the ROM and RAM. Enabling the relocation feature causes the memory above 16MB
to become non-contiguous and therefore inaccessible.

Micronics Computers has tested and verified the following memory brands:
Toshiba, Siemens, Mitsubishi, NEC


```
+=============================+
+                             +
+ MOTHERBOARD JUMPER SETTINGS +
+                             +
+=============================+
```

J13 External 6-volt battery connector
  Pin 1 - Battery Positive
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Ground

J23 External speaker
  Pin 1 - Speaker
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - +5 volts DC

J24 Keylock / Power LED
  Pin 1 - Power LED signal
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Keyboard lock signal
  Pin 5 - Ground

W3 Reserved
  Not installed

W6 Turbo switch
  Pin 1 - Signal
  Pin 2 - Ground

W7 Turbo LED
  Pin 1 - Signal
  Pin 2 - Ground

W8 Reset switch
  Pin 1 - Signal
  Pin 2 - Ground

This document is for the full-sized (13.3" x 12.025") 80486DX-33, 80486DX-50, and
80486DX2-66 EISA motherboard. The part number for this board is 09-00117-xx.

It's identifying features are: an LED between expansion slots #5 and #6; eight 32-bit
expansion slots; sixteen sockets for SIMMs (four banks of 4); a socket for a Weitek
4167
coprocessor; one proprietary 32-bit slot which accommodates the MVC32LB (a video card
based on the ATI Mach 32 chip).

The bus speed for this motherboard is fixed at 8MHz.


```
+=============================+
+                             +
+ MOTHERBOARD SWITCH SETTINGS +
+                             +
+   * = Default setting       +
+=============================+
```

1 Memory size (see below)
2 Memory size (see below)
3 Memory size (see below)
4 Memory size (see below)
5 Memory size (see below)

6 Reserved   *On

7 Reserved   *Off

8 Color video adapter *On
   Mono video adapter   Off

DIP switch settings for memory size
===================================

Memory		Banks			DIP Switch 2				
MB	0	1	2	3	S1	S2	S3	S4	S5
----	----	----	----	----	----	----	----	----	----
1MB	256K				ON	ON	ON	ON	ON
2MB	256K	256K			OFF	ON	ON	ON	ON
3MB	256K	256K	256K		ON	OFF	ON	ON	ON
4MB	256K	256K	256K	256K	OFF	OFF	ON	ON	ON
4MB	1MB				ON	ON	OFF	ON	ON
5MB	256K	1MB			ON	ON	OFF	OFF	ON
6MB	256K	256K	1MB		ON	OFF	ON	OFF	ON
7MB	256K	256K	256K	1MB	OFF	ON	ON	OFF	ON
8MB	1MB	1MB			OFF	ON	OFF	ON	ON
9MB	256K	1MB	1MB		ON	OFF	OFF	OFF	ON
10MB	256K	256K	1MB	1MB	OFF	OFF	ON	OFF	ON
12MB	1MB	1MB	1MB		ON	OFF	OFF	ON	ON
13MB	256K	1MB	1MB	1MB	OFF	OFF	OFF	OFF	ON
16MB	1MB	1MB	1MB	1MB	OFF	OFF	OFF	ON	ON
16MB	4MB				ON	ON	OFF	ON	OFF
20MB	1MB	4MB			ON	ON	OFF	OFF	OFF
24MB	1MB	1MB	4MB		ON	OFF	ON	OFF	OFF
28MB	1MB	1MB	1MB	4MB	OFF	ON	ON	OFF	OFF
32MB	4MB	4MB			OFF	ON	OFF	ON	OFF
36MB	1MB	4MB	4MB		ON	OFF	OFF	OFF	OFF
40MB	1MB	1MB	4MB	4MB	OFF	OFF	ON	OFF	OFF
48MB	4MB	4MB	4MB		ON	OFF	OFF	ON	OFF
52MB	1MB	4MB	4MB	4MB	OFF	OFF	OFF	OFF	OFF
64MB	4MB	4MB	4MB	4MB	OFF	OFF	OFF	ON	OFF

In the table above, 256K indicates that four 256Kx9 SIMMs are installed in the bank,
1MB indicates that four 1Mx9 SIMMs are installed in the bank, and 4MB indicates that
four 4Mx9 SIMMs are installed in the bank. The above shows all of the possible memory
configurations.

When installing more than 16MB of memory, BIOS relocation must be disabled. Bios
relocation copies the video Bios (C0000-C7FFF) and the system ROM Bios (F0000-FFFFF)
into
RAM. The motherboard adds 15MB to these addresses (F00000) to be able to differentiate
between the ROM and RAM. Enabling the relocation feature causes the memory above 16MB
to become non-contiguous and therefore inaccessible.

Micronics Computers has tested and verified the following memory brands:
Toshiba, Siemens, Mitsubishi, NEC


```
+============================+
+                            +
+ MOTHERBOARD JUMPER SETTINGS +
+                            +
+============================+
```


J2 Keyboard connector
  Pin 1 - Keyboard clock
  Pin 2 - Keyboard data
  Pin 3 - no connector
  Pin 4 - Ground
  Pin 5 - +5 volts DC

J17 External 6-volt battery connector
  Pin 1 - Battery Positive
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Ground

J22 External speaker
  Pin 1 - Speaker
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - +5 volts DC

J23 Keylock / Power LED
  Pin 1 - Power LED signal
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Keyboard lock signal
  Pin 5 - Ground

W5 Reset switch
  Pin 1 - Signal
  Pin 2 - Ground

W6 Turbo switch
  Pin 1 - Signal
  Pin 2 - Ground

W7 Turbo LED
  Pin 1 - Signal
  Pin 2 - Ground

W11 Reserved
  Pins 2-3

W12 Reserved
  Pins 1-2

W13 Floppy Drive
  Pins 1-2 -- Enables on-board floppy drive
  Pins 2-3 -- Disables on-board floppy drive

W45 Reserved

```
   Pins 1-2

W43  CPU selection
   Pins 1-2       486DX2-50
   Not installed  486DX-33


NOTE:  The system board is configured at the factory for either the 486DX-33 or the
486DX2-50.
        It is not possible to switch the 486DX-33 to the 486DX2-50 (or vice versa) by
        configuring the jumpers.



Serial Port configuration
=========================

I/O addresses
-------------
COM1 = 3F8-3FFh
COM2 = 2F8-2FFh

COM1       COM2        W2     W8     W9
-----------------------------------
Enabled    Enabled     1-2    1-2    1-2
Enabled    Disabled    1-2    1-2    2-3
Disabled   Enabled     2-3    1-2    1-2
Disabled   Disabled    2-3    1-2    2-3


Parallel Port configuration
===========================

Port       I/O address  W3     W4     W10
-------------------------------------
LPT1       3BC-3BEh     1-2    2-3    2-3
LPT2       378-37Ah     1-2    1-2    2-3
LPT3       278-27Ah     2-3    1-2    2-3
Disabled                2-3    2-3    2-3


Cache configuration
===================

Cache  W20   W21   W41   W44
----------------------------
64K    N/C   N/C   N/C   2-3
256K   1-2   1-2   1-2   1-2

N/C = Not Connected
This document is for the full-sized (13.3" x 12.025") 80486DX-25, 80486DX-33 EISA
motherboard.  The part number for this board is 09-00090-xx.

It's identifying features are: an LED between expansion slots #5 and #6; eight 32-bit
expansion slots; sixteen sockets for SIMMs (four banks of 4); a socket for a Weitek
4167
coprocessor.

The bus speed for this motherboard is fixed at 8MHz.


+==============================+
+                              +
+ MOTHERBOARD SWITCH SETTINGS  +
+                              +
+    * = Default setting       +
+==============================+

SW1
---
```

```
1  External cache not invalidated  *Off
   External cache invalidated       On

2  On board Bios enabled           *Off
   On board Bios disabled           On

3  64K external cache               Off
   128K or 256K external cache      On

4  33MHz system                     Off
   25MHz system                     On

5  Reserved                        *Off

6  Reserved                        *Off

7  CGA / EGA / VGA                  On
   Monochrome                       Off

8  128K external cache              On
   64K or 256K external cache       Off


SW2
---
1  Memory settings (see below)
2  Memory settings (see below)
3  Memory settings (see below)
4  Memory settings (see below)
5  Memory settings (see below)

6  Cache video Bios                *Off
   Don't cache video Bios           On

7  Cache D00000-EFFFFF region      *On
   Don't cache D00000-EFFFFF        Off

8  Reserved                        *Off


DIP switch settings for memory size
===================================
Memory         Banks              DIP Switch 2
---------------------------------------------------
 MB     0     1     2     3    S1    S2    S3    S4    S5
----   ----  ----  ----  ----  ----  ----  ----  ----  ----
 4MB   1MB                      ON    ON    ON    ON    ON
 8MB   1MB   1MB               OFF    ON    ON    ON    ON
12MB   1MB   1MB   1MB          ON   OFF    ON    ON    ON
16MB   1MB   1MB   1MB   1MB   OFF   OFF    ON    ON   OFF
16MB   4MB                      ON    ON   OFF    ON   OFF
20MB   1MB   4MB                ON    ON   OFF   OFF   OFF
24MB   1MB   1MB   4MB          ON   OFF    ON   OFF   OFF
28MB   1MB   1MB   1MB   4MB   OFF    ON    ON   OFF   OFF
32MB   4MB   4MB               OFF    ON   OFF    ON   OFF
36MB   1MB   4MB   4MB          ON   OFF   OFF   OFF   OFF
40MB   1MB   1MB   4MB   4MB   OFF   OFF    ON   OFF   OFF
48MB   4MB   4MB   4MB          ON   OFF   OFF    ON   OFF
52MB   1MB   4MB   4MB   4MB   OFF   OFF   OFF   OFF   OFF
64MB   4MB   4MB   4MB   4MB   OFF   OFF   OFF    ON   OFF

In the table above, 1MB indicates that four 1Mx9 SIMMs are installed in the bank,
and 4MB indicates that four 4Mx9 SIMMs are installed in the bank.  The above shows
all of the possible memory configurations.

When installing more than 16MB of memory, BIOS relocation must be disabled.  Bios
relocation copies the video Bios (C0000-C7FFF) and the system ROM Bios (F0000-FFFFF)
into
```

RAM. The motherboard adds 15MB to these addresses (F00000) to be able to differentiate
between the ROM and RAM. Enabling the relocation feature causes the memory above 16MB
to become non-contiguous and therefore inaccessible.

Micronics Computers has tested and verified the following memory brands:
Toshiba, Siemens, Mitsubishi, NEC


```
+=============================+
+                             +
+ MOTHERBOARD JUMPER SETTINGS +
+                             +
+=============================+
```


J2 Keyboard connector
  Pin 1 - Keyboard clock
  Pin 2 - Keyboard data
  Pin 3 - no connector
  Pin 4 - Ground
  Pin 5 - +5 volts DC

J3 External 6-volt battery connector
  Pin 1 - Battery Positive
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Ground

J15 External speaker
  Pin 1 - Speaker
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - +5 volts DC

J16 Keylock / Power LED
  Pin 1 - Power LED signal
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Keyboard lock signal
  Pin 5 - Ground

W3 External cache configuration
  Pins 1-2 64K or 128K
  Pins 2-3 256K

W4 External cache configuration
  Pins 1-2 64K
  Pins 2-3 128K or 256K

W5 Reset switch
  Pin 1 - Signal
  Pin 2 - Ground

W6 Turbo switch
  Pin 1 - Signal
  Pin 2 - Ground

W7 Turbo LED
  Pin 1 - Signal
  Pin 2 - Ground

This document is for the full-sized (13.8" x 12.025") 486-25 ISA motherboard.
The part number for this board is 09-00025-xx.

It's identifying features are: an LED between expansion slots #5 and #6; eight 16-bit
expansion slots; sixteen sockets for SIMMs (four banks of 4); a socket for a Weitek
4167
coprocessor.

The bus speed for this motherboard is fixed at 8MHz.


```
+==============================+
+                              +
+ MOTHERBOARD SWITCH SETTINGS  +
+                              +
+   * = Default setting        +
+==============================+
```

SW1
---
1 Internal cache enabled   *On
   Internal cache disabled   Off

2 Enable on-board Bios   *Off
   Enable external Bios   On

3 Reserved   *On

4 External cache enabled   *On
   External cache disabled   Off

5 Bios relocation enabled   On
   Bios relocation disabled *Off

6 Reserved   *Off

7 CGA / EGA / VGA   *On
   Monochrome   Off

8 Reserved   *Off

SW2
---
1 Memory size (see below)
2 Memory size (see below)
3 Memory size (see below)
4 Memory size (see below)

5 Reserved   *Off

6 D00000-EFFFFF cacheable   *Off
   D00000-EFFFFF non-cacheable On

7 64K or 256K external cache   Off
   128K external cache   On

8 64K external cache   Off
   128K or 256K external cache On

DIP switch settings for memory size
===================================
```
Memory          Banks          DIP Switch 2
-------------------------------------------------
 MB     0    1    2    3    S1   S2   S3   S4
----    ---- ---- ---- ---- ---- ---- ---- ----
 1MB    256K                ON   ON   ON   ON
 2MB    256K 256K           OFF  ON   ON   ON
 3MB    256K 256K 256K      ON   OFF  ON   ON
 4MB    256K 256K 256K 256K OFF  OFF  ON   ON
 4MB    1MB                 ON   ON   OFF  ON
 5MB    256K 1MB            ON   ON   OFF  OFF
 6MB    256K 256K 1MB       ON   OFF  ON   OFF
```

```
 7MB    256K 256K 256K 1MB   OFF  ON   ON   OFF
 8MB    1MB  1MB               OFF  ON   OFF  ON
 9MB    256K 1MB  1MB          ON   OFF  OFF  OFF
10MB    256K 256K 1MB  1MB     OFF  OFF  ON   OFF
12MB    1MB  1MB  1MB          ON   OFF  OFF  ON
13MB    256K 1MB  1MB  1MB     OFF  OFF  OFF  OFF
16MB    1MB  1MB  1MB  1MB     OFF  OFF  OFF  ON
```

In the table above, 256K indicates that four 256Kx9 SIMMs are installed in the bank,
and 1MB indicates that four 1Mx9 SIMMs are installed in the bank. The above shows
all of the possible memory configurations.

The maximum amount of memory supported by this board is 16MB.

Micronics Computers has tested and verified the following memory brands:
Toshiba, Siemens, Mitsubishi, NEC


```
+=============================+
+                             +
+ MOTHERBOARD JUMPER SETTINGS +
+                             +
+=============================+
```


J2 External 6-volt battery connector
  Pin 1 - Battery Positive
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Ground

J22 External speaker
  Pin 1 - Speaker
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - +5 volts DC

J23 Keylock / Power LED
  Pin 1 - Power LED signal
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Keyboard lock signal
  Pin 5 - Ground

W2 Reserved
  Pins 2-3

W4 Reset switch
  Pin 1 - Signal
  Pin 2 - Ground

W5 Turbo LED
  Pin 1 - Signal
  Pin 2 - Ground

W6 Turbo switch
  Pin 1 - Signal
  Pin 2 - Ground

W8 External cache configuration
  Pins 1-2 - 64K
  Pins 2-3 - 128K or 256K

W9 External cache configuration
  Pins 1-2 - 64K or 128K
  Pins 2-3 - 256K

This document is for the baby-sized (13.3" x 8.5") Baby Gemini 486-33 motherboard.

The part number for this board is 09-00081-xx, and also 09-00135-xx.

It's identifying features are: an LED between expansion slots #5 and #6; eight 16-bit
expansion slots; eight sockets for SIMMs (two banks of 4); a socket for a Weitek 4167
coprocessor; one proprietary 32-bit slot which accommodates the M810 (a memory
expansion card with eight sockets for SIMMs).

The bus speed for this motherboard is fixed at 8MHz.


```
+============================+
+                            +
+ MOTHERBOARD SWITCH SETTINGS +
+                            +
+   * = Default setting      +
+============================+
```

SW1
---
1 Reserved   *On
2 Reserved   *Off
3 Reserved   *Off
4 Reserved   *Off
5 Reserved   *Off
6 Reserved   *Off
7 Reserved   *Off
8 Reserved   *Off

SW2
---
1 Memory size (see below)
2 Memory size (see below)
3 Memory size (see below)
4 Memory size (see below)
5 Memory size (see below)

6 Reserved   *On
7 Reserved   *Off

8 64K external cache   Off
   256K external cache   On

DIP switch settings for memory size
===================================

Memory	Banks				DIP Switch 2				
MB	0	1	2	3	S1	S2	S3	S4	S5
----	----	----	----	----	----	----	----	----	----
1MB	256K				ON	ON	ON	ON	ON
2MB	256K	256K			OFF	ON	ON	ON	ON
3MB	256K	256K	256K		ON	OFF	ON	ON	ON
4MB	256K	256K	256K	256K	OFF	OFF	ON	ON	ON
4MB	1MB				ON	ON	OFF	ON	ON
5MB	256K	1MB			ON	ON	OFF	OFF	ON
6MB	256K	256K	1MB		ON	OFF	ON	OFF	ON
7MB	256K	256K	256K	1MB	OFF	ON	ON	OFF	ON
8MB	1MB	1MB			OFF	ON	OFF	ON	ON
9MB	256K	1MB	1MB		ON	OFF	OFF	OFF	ON
10MB	256K	256K	1MB	1MB	OFF	OFF	ON	OFF	ON
12MB	1MB	1MB	1MB		ON	OFF	OFF	ON	ON
13MB	256K	1MB	1MB	1MB	OFF	OFF	OFF	OFF	ON
16MB	1MB	1MB	1MB	1MB	OFF	OFF	OFF	ON	ON
16MB	4MB				ON	ON	OFF	ON	OFF
20MB	1MB	4MB			ON	ON	OFF	OFF	OFF
24MB	1MB	1MB	4MB		ON	OFF	ON	OFF	OFF
28MB	1MB	1MB	1MB	4MB	OFF	ON	ON	OFF	OFF

```
32MB    4MB   4MB                   OFF  ON   OFF  ON   OFF
36MB    1MB   4MB   4MB             ON   OFF  OFF  OFF  OFF
40MB    1MB   1MB   4MB   4MB       OFF  OFF  ON   OFF  OFF
48MB    4MB   4MB   4MB             ON   OFF  OFF  ON   OFF
52MB    1MB   4MB   4MB   4MB       OFF  OFF  OFF  OFF  OFF
64MB    4MB   4MB   4MB   4MB       OFF  OFF  OFF  ON   OFF
```

In the table above, 256K indicates that four 256Kx9 SIMMs are installed in the bank,
1MB indicates that four 1Mx9 SIMMs are installed in the bank, and 4MB indicates that
four 4Mx9 SIMMs are installed in the bank. The above shows all of the possible memory
configurations.

Please note that Bank 0 and Bank 1 are on the motherboard. Banks 2 and 3 are found on
the M810. Each bank consists of four SIMMs, and all four sockets within a bank must
be filled.

When installing more than 16MB of memory, BIOS relocation must be disabled. Bios
relocation copies the video Bios (C0000-C7FFF) and the system ROM Bios (F0000-FFFFF)
into
RAM. The motherboard adds 15MB to these addresses (F00000) to be able to differentiate
between the ROM and RAM. Enabling the relocation feature causes the memory above 16MB
to become non-contiguous and therefore inaccessible.

Micronics Computers has tested and verified the following memory brands:
Toshiba, Siemens, Mitsubishi, NEC

+==============================+
+   +
+ MOTHERBOARD JUMPER SETTINGS +
+   +
+==============================+

J11 External 6-volt battery connector
  Pin 1 - Battery Positive
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Ground

J23 External speaker
  Pin 1 - Speaker
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - +5 volts DC

J24 Keylock / Power LED
  Pin 1 - Power LED signal
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Keyboard lock signal
  Pin 5 - Ground

W3 External cache configuration
  Not installed - 64K
  Installed   - 256K

W4 External cache configuration
  Not installed - 64K
  Installed   - 256K

W5 Turbo LED
  Pin 1 - Signal
  Pin 2 - Ground

W6 Reset switch
  Pin 1 - Signal
  Pin 2 - Ground
```

```
W7  Turbo switch
  Pin 1 - Signal
  Pin 2 - Ground

W15  External cache configuration
  Pins 1-2 - 256K
  Pins 2-3 - 64K


This document is for the baby-sized (13.3" x 8.5") Baby Gemini 486DX2-50 motherboard.
The part number for this board is 09-00135-xx.

It's identifying features are: an LED between expansion slots #5 and #6; eight 16-bit
expansion slots; eight sockets for SIMMs (two banks of 4); a socket for a Weitek 4167
coprocessor; one proprietary 32-bit slot which accommodates the M810 (a memory
expansion card with eight sockets for SIMMs).

The bus speed for this motherboard is fixed at 8MHz.


+=============================+
+                             +
+ MOTHERBOARD SWITCH SETTINGS +
+                             +
+   * = Default setting       +
+=============================+

SW1
---
1  Reserved              *On
2  Reserved              *Off
3  Reserved              *Off
4  Reserved              *On
5  Reserved              *Off
6  Reserved              *Off
7  Reserved              *Off
8  Reserved              *Off

SW2
---
1  Memory size (see below)
2  Memory size (see below)
3  Memory size (see below)
4  Memory size (see below)
5  Memory size (see below)

6  Reserved              *On
7  Reserved              *Off

8  64K external cache    Off
   256K external cache   On




DIP switch settings for memory size
===================================
Memory          Banks               DIP Switch 2
-------------------------------------------------------
 MB     0    1    2    3    S1   S2   S3   S4   S5
----    ---- ---- ---- ---- ---- ---- ---- ---- ----
 1MB    256K                ON   ON   ON   ON   ON
 2MB    256K 256K           OFF  ON   ON   ON   ON
 3MB    256K 256K 256K      ON   OFF  ON   ON   ON
 4MB    256K 256K 256K 256K OFF  OFF  ON   ON   ON
 4MB    1MB                 ON   ON   OFF  ON   ON
 5MB    256K 1MB            ON   ON   OFF  OFF  ON
 6MB    256K 256K 1MB       ON   OFF  ON   OFF  ON
 7MB    256K 256K 256K 1MB  OFF  ON   ON   OFF  ON
```

Size	Bank 0	Bank 1	Bank 2	Bank 3					
8MB	1MB	1MB			OFF	ON	OFF	ON	ON
9MB	256K	1MB	1MB		ON	OFF	OFF	OFF	ON
10MB	256K	256K	1MB	1MB	OFF	OFF	ON	OFF	ON
12MB	1MB	1MB	1MB		ON	OFF	OFF	ON	ON
13MB	256K	1MB	1MB	1MB	OFF	OFF	OFF	OFF	ON
16MB	1MB	1MB	1MB	1MB	OFF	OFF	OFF	ON	ON
16MB	4MB				ON	ON	OFF	ON	OFF
20MB	1MB	4MB			ON	ON	OFF	OFF	OFF
24MB	1MB	1MB	4MB		ON	OFF	ON	OFF	OFF
28MB	1MB	1MB	1MB	4MB	OFF	ON	ON	OFF	OFF
32MB	4MB	4MB			OFF	ON	OFF	ON	OFF
36MB	1MB	4MB	4MB		ON	OFF	OFF	OFF	OFF
40MB	1MB	1MB	4MB	4MB	OFF	OFF	ON	OFF	OFF
48MB	4MB	4MB	4MB		ON	OFF	OFF	ON	OFF
52MB	1MB	4MB	4MB	4MB	OFF	OFF	OFF	OFF	OFF
64MB	4MB	4MB	4MB	4MB	OFF	OFF	OFF	ON	OFF

In the table above, 256K indicates that four 256Kx9 SIMMs are installed in the bank,
1MB indicates that four 1Mx9 SIMMs are installed in the bank, and 4MB indicates that
four 4Mx9 SIMMs are installed in the bank. The above shows all of the possible memory
configurations.

Please note that Bank 0 and Bank 1 are on the motherboard. Banks 2 and 3 are found on
the M810. Each bank consists of four SIMMs, and all four sockets within a bank must
be filled.

When installing more than 16MB of memory, BIOS relocation must be disabled. Bios
relocation copies the video Bios (C0000-C7FFF) and the system ROM Bios (F0000-FFFFF)
into
RAM. The motherboard adds 15MB to these addresses (F00000) to be able to differentiate
between the ROM and RAM. Enabling the relocation feature causes the memory above 16MB
to become non-contiguous and therefore inaccessible.

Micronics Computers has tested and verified the following memory brands:
Toshiba, Siemens, Mitsubishi, NEC


```
+==============================+
+                              +
+ MOTHERBOARD JUMPER SETTINGS  +
+                              +
+==============================+
```

J11 External 6-volt battery connector
  Pin 1 - Battery Positive
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Ground

J23 External speaker
  Pin 1 - Speaker
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - +5 volts DC

J24 Keylock / Power LED
  Pin 1 - Power LED signal
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Keyboard lock signal
  Pin 5 - Ground

W3 External cache configuration
  Not installed - 64K
  Installed   - 256K

W4 External cache configuration

```
  Not installed - 64K
  Installed    - 256K


W5  Turbo LED
  Pin 1 - Signal
  Pin 2 - Ground

W6  Reset switch
  Pin 1 - Signal
  Pin 2 - Ground

W7  Turbo switch
  Pin 1 - Signal
  Pin 2 - Ground

W15  External cache configuration
  Pins 1-2 - 256K
  Pins 2-3 - 64K
```

This document is for the baby-sized (13.3" x 8.5") Baby Gemini 486SX-25 motherboard.
It is also known as the "Upgradeable" board because it can accommodate the Intel
OverDrive CPU. The part number for this board is 09-00145-xx.

It's identifying features are: an LED between expansion slots #5 and #6; eight 16-bit
expansion slots; four sockets for SIMMs (using 72-pin SIMMs); one proprietary 80-pin
SIMM socket which accommodates a Micronics External Cache Card.

The bus speed for this motherboard is fixed at 8MHz.

```
+=============================+
+                             +
+ MOTHERBOARD SWITCH SETTINGS +
+                             +
+    * = Default setting      +
+=============================+

SW1
---
1  Memory size (see below)
2  Memory size (see below)
3  Memory size (see below)
4  Memory size (see below)

5  Reserved              *Off
6  Reserved              *Off
7  Reserved              *Off
8  Reserved              *On
```

```
DIP switch settings for memory size
===================================
Memory        Banks         DIP Switch 2
---------------------------------------------------
 MB     0    1    2    3    S1   S2   S3   S4
----   ---- ---- ---- ---- ---- ---- ---- ----
 4MB    4M                  ON   ON   ON   ON
 8MB    4M   4M             OFF  ON   ON   ON
12MB    4M   4M   4M        ON   OFF  ON   ON
16MB    4M   4M   4M   4M   OFF  OFF  ON   ON
16MB   16M                  ON   ON   OFF  ON
20MB    4M  16M             ON   ON   OFF  OFF
24MB    4M   4M  16M        ON   OFF  ON   OFF
28MB    4M   4M   4M  16M   OFF  ON   ON   OFF
32MB   16M  16M             OFF  ON   OFF  ON
36MB    4M  16M  16M        ON   OFF  OFF  OFF
40MB    4M   4M  16M  16M   OFF  OFF  ON   OFF
```

```
48MB    16M  16M  16M        ON   OFF  OFF  ON
52MB     4M  16M  16M  16M   OFF  OFF  OFF  OFF
64MB    16M  16M  16M  16M   OFF  OFF  OFF  ON
```

In the table above, 4M indicates that one 1Mx36 SIMM is installed in the socket,
16M indicates that one 4Mx36 SIMM is installed in the socket. The above shows all
of the possible memory configurations.

When installing more than 16MB of memory, BIOS relocation must be disabled. Bios
relocation copies the video Bios (C0000-C7FFF) and the system ROM Bios (F0000-FFFFF)
into
RAM. The motherboard adds 15MB to these addresses (F00000) to be able to differentiate
between the ROM and RAM. Enabling the relocation feature causes the memory above 16MB
to become non-contiguous and therefore inaccessible.

Micronics Computers has tested and verified the following 1Mx36 memory brands:
Micron Technologies, Mitsubishi, Samsung, Texas Instruments, Toshiba

Micronics Computers has tested and verified the following 4Mx36 memory brands:
Mitsubishi, Samsung, Toshiba

```
+=============================+
+                             +
+ MOTHERBOARD JUMPER SETTINGS +
+                             +
+=============================+
```

J5 External 6-volt battery connector
  Pin 1 - Battery Positive
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Ground

J7 Keylock / Power LED
  Pin 1 - Power LED signal
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Keyboard lock signal
  Pin 5 - Ground

J8 External speaker
  Pin 1 - Speaker
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - +5 volts DC

W1 Turbo LED
  Pin 1 - Signal
  Pin 2 - Ground

W2 Reset switch
  Pin 1 - Signal
  Pin 2 - Ground

W3 Turbo switch
  Pin 1 - Signal
  Pin 2 - Ground

This document is for the baby-sized (13.3" x 8.5") Baby Gemini 486-25SX motherboard.
The part number for this board is 09-00093-xx.

It's identifying features are: an LED between expansion slots #5 and #6; six 16-bit
expansion slots; two 8-bit expansion slots; eight sockets for SIMMs (two banks of 4);
one proprietary 32-bit slot which accommodates the Micronics External Cache Card (see
below).

The bus speed for this motherboard is fixed at 8MHz.

```
+=============================+
+                             +
+ MOTHERBOARD SWITCH SETTINGS +
+                             +
+    * = Default setting      +
+=============================+


SW1
---
1  Reserved              *Off
2  Reserved              *Off
3  Reserved              *Off
4  Reserved              *Off
5  Reserved              *Off
6  Reserved              *Off
7  Reserved              *Off
8  Reserved              *Off


SW2
---
1  Memory size (see below)
2  Memory size (see below)
3  Memory size (see below)
4  Memory size (see below)
5  Memory size (see below)

6  Reserved              *Off
7  Reserved              *Off

8  CGA / EGA / VGA       *On
   Monochrome             Off



DIP switch settings for memory size
===================================
Memory   Banks           DIP Switch 2
-------------------------------------------
 MB      0     1    S1    S2    S3    S4    S5
----     ---- ---- ---- ---- ---- ---- ----
 1MB     256K           ON    ON    ON    ON    ON
 2MB     256K 256K  OFF   ON    ON    ON    ON
 4MB     1MB            ON    ON    OFF   ON    ON
 5MB     256K 1MB   ON    ON    OFF   OFF   ON
 8MB     1MB  1MB   OFF   ON    OFF   ON    ON
16MB     4MB            ON    ON    OFF   ON    OFF
20MB     1MB  4MB   ON    ON    OFF   OFF   OFF
32MB     4MB  4MB   OFF   ON    OFF   ON    OFF
```

In the table above, 256K indicates that four 256Kx9 SIMMs are installed in the bank,
1MB indicates that four 1Mx9 SIMMs are installed in the bank, and 4MB indicates that
four 4Mx9 SIMMs are installed in the bank. The above shows all of the possible memory
configurations.

Please note that there are only two banks of memory. Each bank consists of four SIMMs,
and all four sockets within a bank must be filled.

When installing more than 16MB of memory, BIOS relocation must be disabled. Bios
relocation copies the video Bios (C0000-C7FFF) and the system ROM Bios (F0000-FFFFF)
into
RAM. The motherboard adds 15MB to these addresses (F00000) to be able to differentiate
between the ROM and RAM. Enabling the relocation feature causes the memory above 16MB
to become non-contiguous and therefore inaccessible.

Micronics Computers has tested and verified the following memory brands:
Toshiba, Siemens, Mitsubishi, NEC

```
+=============================+
+                             +
+ MOTHERBOARD JUMPER SETTINGS +
+                             +
+=============================+


J19  External 6-volt battery connector
  Pin 1 - Battery Positive
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Ground

J22  External speaker
  Pin 1 - Speaker
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - +5 volts DC

J23  Keylock / Power LED
  Pin 1 - Power LED signal
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Keyboard lock signal
  Pin 5 - Ground

W1  CPU type
  Not installed - 486SX
  Installed     - 487SX

W2  CPU type
  Not installed - 487SX
  Installed     - 486SX

W4  Reset switch
  Pin 1 - Signal
  Pin 2 - Ground

W5  Turbo switch
  Pin 1 - Signal
  Pin 2 - Ground

W6  Turbo LED
  Pin 1 - Signal
  Pin 2 - Ground



+======================+
+                      +
+  External Cache Card +
+                      +
+======================+


The External Cache Card allows the addition of 64K, 128K, or 256K of
external cache to the motherboard.  It also provides a Weitek 4167
socket for a co-processor installation.

64K external cache
==================


Install eight 8Kx8 SRAM chips into U1, U2, U5, U6, U9, U10, U14, and U15.
The chips must be 25ns or faster.  Make sure that W1, W2, W3, and W4 on
the card are not jumpered.

128K external cache
==================
```

Install four 32Kx8 SRAM chips into U1, U2, U5, and U6. The chips must be
25ns or faster. Make sure that W1, W2, and W3 on the card have jumper
blocks installed, and that W4 is not jumpered.

256K external cache
===================

Install eight 32Kx8 SRAM chips into U1, U2, U5, U6, U9, U10, U14, and U15.
The chips must be 25ns or faster. Make sure that W1 on the card is not
jumpered, and that W2, W3, and W4 have jumper blocks installed.

After completing the cache installation on the card, insert the External
Cache Card into the special slot on the motherboard. To activate the cache,
set the External Cache feature to Enabled in the CMOS setup screen. Press
<Ctrl><Alt><Esc> after booting, then press <PgUp> to get to the second setup
screen. After setting the parameter, press <Esc> to save the settings and
reboot the system. If you press <F10> instead of <Esc>, the system will not
reboot, and the settings will not be saved.
This document is for the baby-sized (13.3" x 8.5") Gemini VL-Bus motherboard.
The part number for this board is 09-00144-xx.

It's identifying features are: an LED between expansion slots #5 and #6; six 16-bit
expansion slots; two 16-bit/VL-Bus expansion slots; four sockets for SIMMs; a socket
for an OverDrive CPU; two IDE interface connectors; one floppy connector; two serial
port connectors; one parallel port connector.

The ISA bus speed for this motherboard is fixed at 8MHz. The VL-Bus bus speed is
determined by the CPU speed. If the CPU is a 486SX-25, or 486DX2-50, the VL-Bus
bus speed is 25MHz. If the CPU is a 486SX-33, 486DX-33, or 486DX2-66, the VL-Bus
bus speed is 33MHz.


```
+=============================+
+                             +
+ MOTHERBOARD SWITCH SETTINGS +
+                             +
+   * = Default setting       +
+=============================+
```

SW1
---
1 Memory size (see below)
2 Memory size (see below)
3 Memory size (see below)
4 Memory size (see below)

5 CPU selection (see below)
6 CPU selection (see below)
7 CPU selection (see below)
8 CPU selection (see below)

DIP switch settings for memory size
===================================

Memory	Banks				DIP Switch 1			
MB	0	1	2	3	S1	S2	S3	S4
----	----	----	----	----	----	----	----	----
4MB	4M				ON	ON	ON	ON
8MB	4M	4M			OFF	ON	ON	ON
12MB	4M	4M	4M		ON	OFF	ON	ON
16MB	4M	4M	4M	4M	OFF	OFF	ON	ON
16MB	16M				ON	ON	OFF	ON
20MB	4M	16M			ON	ON	OFF	OFF
24MB	4M	4M	16M		ON	OFF	ON	OFF

```
28MB      4M     4M     4M    16M     OFF   ON    ON    OFF
32MB     16M    16M                   OFF   ON    OFF   ON
36MB      4M    16M    16M            ON    OFF   OFF   OFF
40MB      4M     4M    16M    16M     OFF   OFF   ON    OFF
48MB     16M    16M    16M            ON    OFF   OFF   ON
52MB      4M    16M    16M    16M     OFF   OFF   OFF   OFF
64MB     16M    16M    16M    16M     OFF   OFF   OFF   ON
```

In the table above, 4M indicates that one 1Mx36 SIMM is installed in the socket,
16M indicates that one 4Mx36 SIMM is installed in the socket. The above shows all
of the possible memory configurations.

When installing more than 16MB of memory, BIOS relocation must be disabled. Bios
relocation copies the video Bios (C0000-C7FFF) and the system ROM Bios (F0000-FFFFF)
into
RAM. The motherboard adds 15MB to these addresses (F00000) to be able to differentiate
between the ROM and RAM. Enabling the relocation feature causes the memory above 16MB
to become non-contiguous and therefore inaccessible.

Micronics Computers has tested and verified the following 1Mx36 memory brands:
Micron Technologies, Mitsubishi, Samsung, Texas Instruments, Toshiba

Micronics Computers has tested and verified the following 4Mx36 memory brands:
Mitsubishi, Samsung, Toshiba


```
DIP switch settings for CPU selection
=====================================
                    DIP Switch 1
                 --------------------
CPU Speed        S5    S6    S7    S8
-------------------------------------
33MHz or 66MHz   Off   On    Off   Off
25MHz or 50MHz   On    Off   On    Off
```


```
+=============================+
+                             +
+ MOTHERBOARD JUMPER SETTINGS +
+                             +
+=============================+
```


J11 Com Port A

J12 Parallel Port

J14 Com Port B

J15 Floppy connector

J16 Primary IDE connector

J24 External 6-volt battery connector
  Pin 1 - Battery Positive
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Ground

J28 External speaker
  Pin 1 - Speaker
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - +5 volts DC

J29 Keylock / Power LED
  Pin 1 - Power LED signal
  Pin 2 - no connector
```

```
   Pin 3 - Ground
   Pin 4 - Keyboard lock signal
   Pin 5 - Ground

J30  Secondary IDE connector

W13  CPU selection
   Pins 1-2   486DX, 486DX2
   Pins 2-3   486SX

W15  Reset switch
   Pin 1 - Signal
   Pin 2 - Ground

W16  Parallel port I/O direction
   Pins 1-2   Input mode
   Pins 2-3   Output mode (default)

W17  Turbo LED
   Pin 1 - Signal
   Pin 2 - Ground

W18  Turbo switch
   Pin 1 - Signal
   Pin 2 - Ground

W19  IDE LED
   Pin 1 - Signal
   Pin 2 - Ground

W20  Flash ROM operation (see note below)
   Pins 1-2   Recovery
   Pins 2-3   Normal operation (default)

DO NOT change jumper W20 unless instructed by a Micronics Technical Support Engineer.
Changing the jumper will result in the Bios being erased.  You must have a Flash
recovery floppy diskette before attempting to recover.  The jumper is NOT moved when
updating the Flash ROM.


+=========================+
+                         +
+  Additional Information  +
+                         +
+=========================+

I/O Port addresses
------------------
COM1   3F8h
COM2   2F8h
COM3   3E8h
COM4   2E8h
LPT1   3BCh
LPT2   378h
LPT3   278h

IRQ list
--------
IRQ  6  Floppy controller
IRQ 14  Primary IDE controller
IRQ 15  Secondary IDE controller

When using the on-board I/O ports, the interrupts used cannot be shared with
another device.  IRQ14 and IRQ15 cannot be shared, regardless of whether or
not IDE drives are attached to the on-board connectors.

This document is for the full-sized (13.3" x 12.025") 80486DX-50 EISA motherboard.
The part number for this board is 09-00128-xx.
```

It's identifying features are: an LED between expansion slots #5 and #6; eight 32-bit
expansion slots; sixteen sockets for SIMMs (four banks of 4); a socket for a Weitek
4167
coprocessor; one proprietary 32-bit slot which accommodates the MVC32LB (a video card
based on the ATI Mach 32 chip).

The bus speed for this motherboard is fixed at 8MHz.

RTC MC146818AP U74

EISA CMOS TC5563APL-10 U73


```
+=============================+
+                             +
+ MOTHERBOARD SWITCH SETTINGS +
+                             +
+   * = Default setting       +
+=============================+
```

1 Memory size (see below)
2 Memory size (see below)
3 Memory size (see below)
4 Memory size (see below)
5 Memory size (see below)

6 Reserved   *On

7 Reserved   *Off

8 Color video adapter *On
   Mono video adapter   Off

DIP switch settings for memory size
===================================

Memory	Banks				DIP Switch 2				
MB	0	1	2	3	S1	S2	S3	S4	S5
1MB	256K				ON	ON	ON	ON	ON
2MB	256K	256K			OFF	ON	ON	ON	ON
3MB	256K	256K	256K		ON	OFF	ON	ON	ON
4MB	256K	256K	256K	256K	OFF	OFF	ON	ON	ON
4MB	1MB				ON	ON	OFF	ON	ON
5MB	256K	1MB			ON	ON	OFF	OFF	ON
6MB	256K	256K	1MB		ON	OFF	ON	OFF	ON
7MB	256K	256K	256K	1MB	OFF	ON	ON	OFF	ON
8MB	1MB	1MB			OFF	ON	OFF	ON	ON
9MB	256K	1MB	1MB		ON	OFF	OFF	OFF	ON
10MB	256K	256K	1MB	1MB	OFF	OFF	ON	OFF	ON
12MB	1MB	1MB	1MB		ON	OFF	OFF	ON	ON
13MB	256K	1MB	1MB	1MB	OFF	OFF	OFF	OFF	ON
16MB	1MB	1MB	1MB	1MB	OFF	OFF	OFF	ON	ON
16MB	4MB				ON	ON	OFF	ON	OFF
20MB	1MB	4MB			ON	ON	OFF	OFF	OFF
24MB	1MB	1MB	4MB		ON	OFF	ON	OFF	OFF
28MB	1MB	1MB	1MB	4MB	OFF	ON	ON	OFF	OFF
32MB	4MB	4MB			OFF	ON	OFF	ON	OFF
36MB	1MB	4MB	4MB		ON	OFF	OFF	OFF	OFF
40MB	1MB	1MB	4MB	4MB	OFF	OFF	ON	OFF	OFF
48MB	4MB	4MB	4MB		ON	OFF	OFF	ON	OFF
52MB	1MB	4MB	4MB	4MB	OFF	OFF	OFF	OFF	OFF
64MB	4MB	4MB	4MB	4MB	OFF	OFF	OFF	ON	OFF

In the table above, 256K indicates that four 256Kx9 SIMMs are installed in the bank,
1MB indicates that four 1Mx9 SIMMs are installed in the bank, and 4MB indicates that

four 4Mx9 SIMMs are installed in the bank. The above shows all of the possible memory
configurations.

When installing more than 16MB of memory, BIOS relocation must be disabled. Bios
relocation copies the video Bios (C0000-C7FFF) and the system ROM Bios (F0000-FFFFF)
into
RAM. The motherboard adds 15MB to these addresses (F00000) to be able to differentiate
between the ROM and RAM. Enabling the relocation feature causes the memory above 16MB
to become non-contiguous and therefore inaccessible.

Micronics Computers has tested and verified the following memory brands:
Toshiba, Siemens, Mitsubishi, NEC


```
+============================+
+                            +
+ MOTHERBOARD JUMPER SETTINGS +
+                            +
+============================+
```

J12 Keyboard connector
  Pin 1 - Keyboard clock
  Pin 2 - Keyboard data
  Pin 3 - no connector
  Pin 4 - Ground
  Pin 5 - +5 volts DC

J18 External 6-volt battery connector
  Pin 1 - Battery Positive
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Ground

J20 External speaker
  Pin 1 - Speaker
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - +5 volts DC

J21 Keylock / Power LED
  Pin 1 - Power LED signal
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Keyboard lock signal
  Pin 5 - Ground

W1 Reserved
  Pins 1-2

W3 Floppy Drive
  Pins 1-2 -- Enables on-board floppy drive
  Pins 2-3 -- Disables on-board floppy drive

W9 Reserved
  Pins 2-3

W10 Reserved
  Pins 1-2

W11 Reserved
  Pins 1-2

W12 Reserved
  Pins 1-2

W13 Reset switch
  Pin 1 - Signal

```
    Pin 2 - Ground

W15  Turbo switch
  Pin 1 - Signal
  Pin 2 - Ground

W16  Turbo LED
  Pin 1 - Signal
  Pin 2 - Ground

W11  Reserved
  Pins 2-3

W12  Reserved
  Pins 1-2


Serial Port configuration
=========================

I/O addresses
-------------
COM1 = 3F8-3FFh
COM2 = 2F8-2FFh

COM1       COM2        W2    W6    W8
----------------------------------
Enabled    Enabled    1-2   1-2   1-2
Enabled    Disabled   1-2   1-2   2-3
Disabled   Enabled    2-3   1-2   1-2
Disabled   Disabled   2-3   1-2   2-3


Parallel Port configuration
===========================

Port       I/O address   W4    W7    W5
--------------------------------------
LPT1       3BC-3BEh      1-2   2-3   2-3
LPT2       378-37Ah      1-2   1-2   2-3
LPT3       278-27Ah      2-3   1-2   2-3
Disabled                 2-3   2-3   2-3


Cache configuration
===================

Cache  W17   W18   W19   W14
---------------------------
64K    N/C   N/C   N/C   2-3
256K   1-2   1-2   1-2   1-2

N/C = Not Connected
```

This document is for the XCP Mini-sized (9.5" x 8.5") ISA-Bus motherboard.
The part number for this board is 09-00164-xx.

It's identifying features are: an LED at the end of expansion slots #7 ; six 16-bit
expansion slots; one 8-bit expansion slot; four sockets for SIMMs; a socket
for an OverDrive CPU

The ISA bus speed for this motherboard is set at 8.33MHz. The CPU clock speed is
determined by the Oscillator. If the CPU is a 486SX-25, or 486DX2-50, the Bus
clock speed is 1/3. For the 486SX-33, 486DX-33, or 486DX2-66, CPUs the Bus
clock speed is 1/4 and the 486DX50 requires 1/6 bus clock speed.

The following shows all of the possible memory configurations.

MEMORY CHART CONFIGURATION

```
=====================================
Memory      Banks
----------------------------
 MB     0    1    2    3
----    ---- ---- ---- ----
 1MB    1M
 2MB    1M   1M
 4MB    4M
 6MB    1M   1M   4M
 8MB    4M   4M
10MB    1M   1M   4M   4M
12MB    4M   4M   4M
16MB    4M   4M   4M   4M
16MB   16M
18MB    1M   1M  16M
20MB    4M  16M
24MB    4M   4M  16M
32MB   16M  16M
36MB    4M  16M  16M
40MB    4M   4M  16M  16M
48MB   16M  16M  16M
64MB   16M  16M  16M  16M
```

In the table above, 1M indicates that one 256x36 SIMM is installed in the socket,
4M indicates that one 1Mx36 SIMM is installed in the socket, 16M indicates that,
one 4Mx36 SIMM is installed in the socket.

Micronics Computers has tested and verified the following 1Mx36 memory brands:
Micron Technologies, Mitsubishi, Samsung, Texas Instruments, Toshiba

Micronics Computers has tested and verified the following 4Mx36 memory brands:
Mitsubishi, Samsung, Toshiba

```
+=============================+
+                             +
+ MOTHERBOARD JUMPER SETTINGS +
+                             +
+=============================+
```

J18 External speaker
  Pin 1 - Speaker
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - +5 volts DC

J19 Keylock / Power LED
  Pin 1 - Power LED signal
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Keyboard lock signal
  Pin 5 - Ground

W12 CPU selection
  Pins 1-2   i487SX , Overdrive SX
  Pins 2-3   i486SX, i486DX, i486DX2

W13 Reset switch
  Pin 1 - Signal
  Pin 2 - Ground

W14 Turbo LED
  Pin 1 - Signal
  Pin 2 - Ground

W15 Turbo switch
  Pin 1 - Signal
  Pin 2 - Ground

```
W1   Clearing CMOS Setup
Temporarily install jumper to Pins 2-3, normal settings are 1-2

W3   Color / Monochrome Display
  COLOR - Installed *
  MONO  - Open
+=========================+
+                         +
+  Cache Configuration    +
+                         +
+=========================+
               W7      W9     W10     W17     W18
64K  Cache     2-3     1-2     2-3     1-2     1-2    (9) 8k X8 Sram -20Ns for U1, U2,
U9, U10, U16, U17, U18, U19 & U45
128k           1-2     2-3     1-2     2-3     1-2    (5) 32kX8 Sram -20Ns for U1, U2,
U9, U10 & U45
256k           2-3     2-3     2-3     2-3     2-3    (9) 32kX8 Sram -20ns for U1, U2,
U9, U10, U16, U17, U18, U19 & U45


+=========================+
+                         +
+  Additional Information +
+                         +
+=========================+



The Mini 486 Motherboard does not require an external battery to be installed.
The Dallas / Benchmarq Real Time Clock Chip contains an internal battery for an
approximate lifetime of 8-10 years.
This document is for the baby-sized (13.3" x 8.5") JX30 VL-Bus motherboard.
The part number for this board is 09-00183-xx.

It's identifying features are: an LED between expansion slots #5 and #6; seven 16-bit
expansion slots; two 16-bit/VL-Bus expansion slots; four sockets for SIMMs; a ZIF
socket
for an OverDrive CPU; IDE interface connector; one floppy connector; two serial
port connectors; one parallel port connector.

The VESA Local Bus speed is determined by the CPU speed.  If the CPU is a 486SX-25, or
486DX2-50, the VL-Bus
bus speed is 25MHz.  If the CPU is a 486SX-33, 486DX-33, or 486DX2-66, the VL-Bus
bus speed is 33MHz. A 50 MHZ CLK is not yet a current VESA standard specification

The ISA bus speed for this motherboard is set at 8.33MHz.  The CPU clock speed is
determined by the Oscillator.  If the CPU is a 486SX-25, or 486DX2-50, the Bus
clock speed is 1/3.  For the 486SX-33, 486DX-33, or 486DX2-66 CPUs, the Bus
clock speed is 1/4.

The following shows all of the possible memory configurations.

MEMORY CHART CONFIGURATION
===================================
Memory       Banks
----------------------------
 MB      0    1    2    3
----    ---- ---- ---- ----
 1MB     1M
 2MB     1M   1M
 4MB     4M
 6MB     1M   1M   4M
 8MB     4M   4M
10MB     1M   1M   4M   4M
12MB     4M   4M   4M
16MB     4M   4M   4M   4M
16MB    16M
18MB     1M   1M  16M
20MB     4M  16M
24MB     4M   4M  16M
```

```
32MB     16M  16M
36MB      4M  16M  16M
40MB      4M   4M  16M  16M
48MB     16M  16M  16M
64MB     16M  16M  16M  16M
```

In the table above, 1M indicates that one 256x36 SIMM is installed in the socket,
4M indicates that one 1Mx36 SIMM is installed in the socket, 16M indicates that,
one 4Mx36 SIMM is installed in the socket.

Micronics Computers has tested and verified the following 1Mx36 memory brands:
Micron Technologies, Mitsubishi, Samsung, Texas Instruments, Toshiba

Micronics Computers has tested and verified the following 4Mx36 memory brands:
Mitsubishi, Samsung, Toshiba

```
+======================================+
+                                      +
+ MOTHERBOARD SWITCH & JUMPER SETTINGS +
+                                      +
+======================================+
```

DIP switch settings for CPU selection
=====================================
```
                       DIP Switch 1
                      ---------------------
CPU Speed             S1    S2    S3    S4
-------------------------------------------
33MHz or DX2/ 66MHz   Off   On    Off   Off
25MHz or DX2/ 50MHz   On    On    Off   Off
```

W70 CPU selection
  Pins 2-3   486DX, 486DX2 & P24T
  Pins 1-2   486SX

W71 PQFP Surface mounted 486SX
  Pins 1-2   PQFP 486SX with Overdrive SX Installed
  Pins 2-3   PQFP 486SX with DX, or DX2 CPU Installed

W40 When Local Bus Master controllers are installed {VL SCSI},
     jumper W40 must be removed to support local bus DMA.

J12 Serial 16450 Port A

J16 Serial 16450 Port B

J15 Parallel Printer Port

W5   Parallel port I/O direction
  Pins 2-3   Output mode (default)
  Pins 1-2   Input mode (Scanner)

I/O Port addresses / CMOS Setup

```
COM1   3F8h     IRQ 4
COM2   2F8h         3
COM3   3E8h         4
COM4   2E8h         3

LPT1   3BCh         7
LPT2   378h         7
LPT3   278h         7
```

IRQ in use

```
IRQ  6  Floppy controller
IRQ 14  Primary IDE controller
```

```
J18  Floppy connector

J17  Primary IDE connector

W11  IDE LED
  Pin 1 - Signal
  Pin 2 - Ground

W31   Clearing CMOS Setup
Temporarily install jumper, normal settings are open.

J6  Optional External 4.5-6.0 volt battery connector {Motorola 146818AP RTC Only}
  Pin 1 - Battery Positive
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Ground

The JX30 Motherboard does not require an external battery to be installed.
The Dallas / Benchmarq Real Time Clock Chip contains an internal battery for an
approximate lifetime of 8-10 years.

W6   Color / Monochrome Display
  COLOR - Installed *
  MONO  - Open

J33  External speaker
  Pin 1 - Speaker
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - +5 volts DC

J34  Keylock / Power LED
  Pin 1 - Power LED signal
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Keyboard lock signal
  Pin 5 - Ground

W12  Reset switch
  Pin 1 - Signal
  Pin 2 - Ground

W13  Turbo LED
  Pin 1 - Signal
  Pin 2 - Ground

W14  Turbo switch
  Pin 1 - Signal
  Pin 2 - Ground

W8   Flash ROM operation (see note below)
  Pins 1-2   Recovery mode
  Pins 2-3   Normal operation (default)

DO NOT change jumper W8 unless instructed by a Micronics Technical Support Engineer.
Changing the jumper will result in the Bios being Erased.  You must have a Flash
recovery floppy diskette before attempting to recover.  The jumper is NOT moved when
updating the Flash ROM.

+=============================+
+                             +
+    Cache Configuration      +
+ Direct Mapped Write Through +
+                             +
+=============================+
             W64     W65     W66     W67     W68
```

```
64K  Cache       1-2      1-2      2-3      2-3      1-2    (9) 8k X8 Sram -20Ns for U202,
U203, U204, U205, U206, U207, U208, U209 & U201
128k             2-3      1-2      1-2      1-2      2-3    (5) 32kX8 Sram -20Ns for U202,
U203, U204, U205, & U201
256k             2-3      2-3      2-3      2-3      2-3    (9) 32kX8 Sram -20ns for U202,
U203, U204, U205, U206, U207, U208, U209 & U201
```

This document is for the baby-sized (13.3" x 8.5") 80486DX-33, DX2/66, DX-50, and
80486SX-25 EISA motherboard. The part number for this board is 09-00159-xx.

It's identifying features are: an LED between expansion slots #5 and #6; eight 32-bit
expansion slots; four sockets for SIMMs (four banks); a ZIF socket for
any DX, DX2, SX & Intel P24T Overdrive. The First 6 EISA slots support Bus Mastering
Controllers.

The Standard EISA bus clock is fixed at 8.3MHz.


```
+=============================+
+                            +
+        MEMORY CHART         +
+                            +
+                            +
+=============================+
```


The following chart shows all of the possible memory configurations
============================

Memory		Banks		
MB	0	1	2	3
----	----	----	----	----
4MB	1MB			
8MB	1MB	1MB		
12MB	1MB	1MB	1MB	
16MB	1MB	1MB	1MB	1MB
16MB	4MB			
20MB	1MB	4MB		
24MB	1MB	1MB	4MB	
32MB	4MB	4MB		
36MB	1MB	4MB	4MB	
40MB	1MB	1MB	4MB	4MB
48MB	4MB	4MB	4MB	
52MB	1MB	4MB	4MB	4MB
64MB	4MB	4MB	4MB	4MB

In the table above 70ns or 60ns access time for DRAM /SIMMs is required,
1MB indicates that a 1Mx36 SIMM is installed in the bank, and 4MB indicates that
a 4Mx36 SIMMs are installed in the bank.

(1Mx36) = 4MB / 4096Kb of RAM and (4Mx36) = 16MB / 15360Kb of RAM

Micronics Computers has tested and verified the following memory brands:
Toshiba, Siemens, Mitsubishi, NEC & Micron


```
+=============================+
+                            +
+ MOTHERBOARD JUMPER SETTINGS +
+                            +
+=============================+
```

J23 Keyboard connector
  Pin 1 - Keyboard clock
  Pin 2 - Keyboard data
  Pin 3 - no connector

```
  Pin 4 - Ground
  Pin 5 - +5 volts DC


J3  External 6-volt battery connector
  Pin 1 - Battery Positive
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Ground


J13  External speaker
  Pin 1 - Speaker
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - +5 volts DC


J11  Keylock / Power LED
  Pin 1 - Power LED signal
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Keyboard lock signal
  Pin 5 - Ground


J9  Reset switch
  Pin 1 - Signal
  Pin 2 - Ground


J8  Turbo switch
  Pin 1 - Signal
  Pin 2 - Ground


J5  Turbo LED
  Pin 1 - Signal
  Pin 2 - Ground


J12 Video mode

Color - INSTALLED {Default}
MONO  - OPEN


CPU SELECTION



  i486SX                        ZIF Socket
  PQFP Surface mounted          CPU Selection     JP1      JP2      JP3
   None                         i486SX            1-2      3-4      2-3
   None                         i486DX or I486DX2 2-3      1-2      1-2 & 3-4

  i486SX                         NONE             1-2      3-4      2-3
  i486SX                        i486DX OR DX/2    2-3      1-2      1-2 & 3-4
  i486SX                        i487SX            1-2      1-2      1-2 & 3-4
  i486SX                        i486SX Overdrive  1-2      2-3      1-2 & 3-4

  For Earlier Revisions Ax      J6
  i486SX                        2-3
  i486DX                        1-2 & 3-4

CPU Clock Speed            J7              J10

33Mhz                      OFF             ON      i486DX/33, DX2/66, SX/33
25Mhz                      ON              ON      i486SX/25, DX2/50
50Mhz                      OFF             OFF     i486DX/50



Cache configuration
===================

Cache  J15    J16    J17    J18    J19    J20    J21    J22
```

```
    ----------------------------
64K    1-2    1-2    1-2    1-2    1-2    1-2    2-3    3-4
(8)  8Kx8 -20ns SRAM for U110-U116 & U118
(1) 64Kx1 -20ns SRAM for U103
(1) 32Kx8 -20NS SRAM for U104


128K   2-3    1-2    1-2    2-3    1-2    1-2    1-2    4-5
(4) 32Kx8 -20ns SRAM for U110-U112 & U118
(1) 64Kx1 -20ns SRAM for U103
(1) 32Kx8 -20NS SRAM for U104


256K   2-3    2-3    1-2    1-2    1-2    1-2    1-2    1-2
(8) 32Kx8 -20ns SRAM for U110-U116 & U118
(1) 64Kx1 -20ns SRAM for U103
(1) 16Kx4 -20NS SRAM for U101 & U102


512K   2-3    2-3    2-3    2-3    2-3    2-3    1-2    4-5
(4) 128Kx8 -20ns SRAM for U105-U108
(1) 64Kx1  -20ns SRAM for U103
(1) 32Kx8  -20ns SRAM for U104
U101 & U102 SRAM must be removed from a 256k cache configuration.
```

This document is for the baby-sized (13.3" x 8.5") JX30G VL-Bus motherboard.
The part number for this board is 09-00189-xx.

It's identifying features are: an LED between expansion slots #5 and #6; seven 16-bit
expansion slots; two 16-bit/VL-Bus expansion slots; four sockets for SIMMs; a ZIF socket
for an OverDrive CPU; IDE interface connector; one floppy connector; two serial
port connectors; one parallel port connector.

The VESA Local Bus speed is determined by the CPU speed. If the CPU is a 486SX-25, or 486DX2-50, the VL-Bus
bus speed is 25MHz. If the CPU is a 486SX-33, 486DX-33, or 486DX2-66, the VL-Bus
bus speed is 33MHz. A 50 MHZ CLK is not yet a current VESA standard specification

The ISA bus speed for this motherboard is set at 8.33MHz. The CPU clock speed is
determined by the Oscillator. If the CPU is a 486SX-25, or 486DX2-50, the Bus
clock speed is 1/3. For the 486SX-33, 486DX-33, or 486DX2-66 CPUs, the Bus
clock speed is 1/4.

The following shows all of the possible memory configurations.

```
MEMORY CHART CONFIGURATION
===================================
Memory        Banks
--------------------------
 MB      0    1    2    3
----    ---- ---- ---- ----
 1MB     1M
 2MB     1M   1M
 4MB     4M
 6MB     1M   1M   4M
 8MB     4M   4M
10MB     1M   1M   4M   4M
12MB     4M   4M   4M
16MB     4M   4M   4M   4M
16MB    16M
18MB     1M   1M  16M
20MB     4M  16M
24MB     4M   4M  16M
32MB    16M  16M
36MB     4M  16M  16M
40MB     4M   4M  16M  16M
48MB    16M  16M  16M
```

```
64MB     16M  16M  16M  16M
```

In the table above, 1M indicates that one 256x36 SIMM is installed in the socket,
4M indicates that one 1Mx36 SIMM is installed in the socket, 16M indicates that,
one 4Mx36 SIMM is installed in the socket.

Micronics Computers has tested and verified the following 1Mx36 memory brands:
Micron Technologies, Mitsubishi, Samsung, Texas Instruments, Toshiba

Micronics Computers has tested and verified the following 4Mx36 memory brands:
Mitsubishi, Samsung, Toshiba

```
+======================================+
+                                      +
+ MOTHERBOARD SWITCH & JUMPER SETTINGS +
+                                      +
+======================================+
```

DIP switch settings for CPU selection
=====================================
```
                         DIP Switch 1
                         ---------------------
CPU Speed                S1    S2    S3    S4
-------------------------------------------
33MHz or DX2/ 66MHz      On    On    Off   Off
25MHz or DX2/ 50MHz      Off   On    Off   Off
```

W12 CPU selection
  Pins 2-3   486DX, 486DX2 & P24T
  Pins 1-2   486SX

W13 PQFP Surface mounted 486SX
  Pins 1-2   PQFP 486SX Enabled
  Pins 2-3   PQFP 486SX Disabled

W4   When Local Bus Master controllers are installed {VL SCSI},
     jumper W4 must be removed to support local bus DMA.

J14 Serial 16550 Port A National Semiconductor Super i/o PC87312

J9   Serial 16550 Port B National Semiconductor Super i/o PC87312

J16 Parallel Printer Port

W7   Parallel port I/O direction
  Pins 2-3   Output mode (default)
  Pins 1-2   Input mode (Tape Backup /Scanner)

I/O Port addresses / CMOS Setup

```
COM1   3F8h     IRQ 4
COM2   2F8h         3
COM3   3E8h         4
COM4   2E8h         3

LPT1   3BCh         7
LPT2   378h         7
LPT3   278h         7
```

IRQ in use

IRQ 6 Floppy controller
IRQ 14 Primary IDE controller

J Floppy connector

```
J   Primary IDE connector

W21  IDE LED
  Pin 1 - Signal
  Pin 2 - Ground

W5   Clearing CMOS Setup
Temporarily install jumper, normal settings are open.

J8  Optional External 4.5-6.0 volt battery connector {Motorola 146818AP RTC Only}
  Pin 1 - Battery Positive
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Ground

The JX30 Motherboard does not require an external battery to be installed.
The Dallas / Benchmarq Real Time Clock Chip contains an internal battery for an
approximate lifetime of 8-10 years.

W2   Color / Monochrome Display
  COLOR - Installed *
  MONO  - Open

W3   PS/2 Mouse @ IRQ 12
  IRQ 12 enabled - Installed  (NEXTStep O/S Installation)
  Disabled       - open

J30  External speaker
  Pin 1 - Speaker
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - +5 volts DC

J31  Keylock / Power LED
  Pin 1 - Power LED signal
  Pin 2 - no connector
  Pin 3 - Ground
  Pin 4 - Keyboard lock signal
  Pin 5 - Ground

W20  Reset switch
  Pin 1 - Signal
  Pin 2 - Ground

W18  Turbo LED
  Pin 1 - Signal
  Pin 2 - Ground

W19  Turbo switch
  Pin 1 - Signal
  Pin 2 - Ground

W8   Flash ROM operation (see note below)
  Pins 1-2   Recovery mode
  Pins 2-3   Normal operation (default)

DO NOT change jumper W8 unless instructed by a Micronics Technical Support Engineer.
Changing the jumper will result in the Bios being Erased.  You must have a Flash
recovery floppy diskette before attempting to recover.  The jumper is NOT moved when
updating the Flash ROM.


+=============================+
+                             +
+    Cache Configuration      +
+ Direct Mapped Write Through +
+                             +
+=============================+
            W10     W11     W22     W23     W24
```

```
64K  Cache      1-2     1-2     2-3     2-3     1-2   (9) 8k X8 Sram -20Ns for U56-U60,
U67-U70,  & U34 / TAG
128k            1-2     2-3     1-2     1-2     2-3   (5) 32kX8 Sram -20Ns for U56-U60,
 & U34
256k            2-3     2-3     2-3     2-3     2-3   (9) 32kX8 Sram -20ns for U56-U60,
U67-U70,  & U34


+=============================+
+                             +
+    Cache Configuration      +
+ Direct Mapped Write Back    +
+                             +
+=============================+
             W16   W17
64K  Cache   1-2   2-3     (1) 8k X8 Sram -20Ns for U61
128k         1-2   2-3     (1) 32kX8 Sram -20Ns for U61
256k         2-3   2-3     (1) 32kX8 Sram -20ns for U61


This document is for the full-sized (13.3" x 12.025") 80486DX-33, 80486DX2-50, and
80486DX2-66 EISA motherboard.  The part number for this board is 09-00173-xx.

It's identifying features are: an LED between expansion slots #5 and #6; eight 32-bit
EISA expansion slots; 4 sockets for SIMMs (four banks).
The EISA Slots are numbered 1, 7, 8, 2, 3, 4, 5, & 6. EISA Slots 7,8 are VESA Slots
which
support Bus mastering VESA SCSI controllers only.
EISA slots 1 to 6 support EISA Bus mastering controllers.

The Bus clock speed EISA standard is fixed at 8.3MHz.


+=============================+
+                             +
+ MOTHERBOARD SWITCH SETTINGS +
+                             +
+   *   Default setting       +
+=============================+

1  Memory size (see below)
2  Memory size (see below)
3  Memory size (see below)
4  Memory size (see below)
5  Memory size (see below)

6  CPU Speed              33Mhz  On   / 25Mhz  Off

7  CPU Speed              33MHZ  Off  / 25Mhz  Off

8  Color video adapter  *On
   Mono video adapter    Off


DIP switch settings for memory size
===================================
Memory         Banks              DIP Switch 2
-----------------------------------------------------
 MB     0    1    2    3    S1   S2   S3   S4   S5
----   ---- ---- ---- ---- ---- ---- ---- ---- ----
 1MB    256K                ON   ON   ON   ON   ON
 2MB    256K 256K           OFF  ON   ON   ON   ON
 3MB    256K 256K 256K      ON   OFF  ON   ON   ON
 4MB    256K 256K 256K 256K OFF  OFF  ON   ON   ON
 4MB    1MB                 ON   ON   OFF  ON   ON
 5MB    256K 1MB            ON   ON   OFF  OFF  ON
 6MB    256K 256K 1MB       ON   OFF  ON   OFF  ON
 7MB    256K 256K 256K 1MB  OFF  ON   ON   OFF  ON
 8MB    1MB  1MB            OFF  ON   OFF  ON   ON
```

```
   9MB    256K 1MB  1MB           ON   OFF  OFF  OFF  ON
10MB    256K 256K 1MB  1MB   OFF  OFF  ON   OFF  ON
12MB    1MB  1MB  1MB           ON   OFF  OFF  ON   ON
13MB    256K 1MB  1MB  1MB   OFF  OFF  OFF  OFF  ON
16MB    1MB  1MB  1MB  1MB   OFF  OFF  OFF  ON   ON
16MB    4MB                   ON   ON   OFF  ON   OFF
20MB    1MB  4MB               ON   ON   OFF  OFF  OFF
24MB    1MB  1MB  4MB           ON   OFF  ON   OFF  OFF
28MB    1MB  1MB  1MB  4MB   OFF  ON   ON   OFF  OFF
32MB    4MB  4MB               OFF  ON   OFF  ON   OFF
36MB    1MB  4MB  4MB           ON   OFF  OFF  OFF  OFF
40MB    1MB  1MB  4MB  4MB   OFF  OFF  ON   OFF  OFF
48MB    4MB  4MB  4MB           ON   OFF  OFF  ON   OFF
52MB    1MB  4MB  4MB  4MB   OFF  OFF  OFF  OFF  OFF
64MB    4MB  4MB  4MB  4MB   OFF  OFF  OFF  ON   OFF
```

In the table above, 256K indicates that (1) 256Kx36 SIMM is installed in the bank,
1MB indicates that (1) 1Mx36 SIMM is installed in the bank, and 4MB indicates that
4Mx36 SIMM is installed in the bank. The above shows all of the possible memory
configurations.

When installing more than 16MB of memory, BIOS relocation must be disabled. Bios
relocation copies the video Bios (C0000-C7FFF) and the system ROM Bios (F0000-FFFFF)
into
RAM. The motherboard adds 15MB to these addresses (F00000) to be able to differentiate
between the ROM and RAM. Enabling the relocation feature causes the memory above 16MB
to become non-contiguous and therefore inaccessible.

Micronics Computers has tested and verified the following memory brands:
Toshiba, Siemens, Mitsubishi, NEC


```
+=============================+
+                             +
+ MOTHERBOARD JUMPER SETTINGS +
+                             +
+=============================+
```

J1 Keyboard connector
   Pin 1 - Keyboard clock
   Pin 2 - Keyboard data
   Pin 3 - no connector
   Pin 4 - Ground
   Pin 5 - +5 volts DC

J17 External 6-volt battery connector
   Pin 1 - Battery Positive
   Pin 2 - no connector
   Pin 3 - Ground
   Pin 4 - Ground

J22 External speaker
   Pin 1 - Speaker
   Pin 2 - no connector
   Pin 3 - Ground
   Pin 4 - +5 volts DC

J23 Keylock / Power LED
   Pin 1 - Power LED signal
   Pin 2 - no connector
   Pin 3 - Ground
   Pin 4 - Keyboard lock signal
   Pin 5 - Ground

W5 Reset switch
   Pin 1 - Signal
   Pin 2 - Ground

```
W6  Turbo switch
   Pin 1 - Signal
   Pin 2 - Ground

W7  Turbo LED
   Pin 1 - Signal
   Pin 2 - Ground

J62 Floppy Controller   IRQ 6, DMA CH 2, I/O 3F0-3F7H  {AUTO DISABLE}

J30 IDE Interface       IRQ 14, I/O 1F0-1F7h {AUTO DISABLE}

W36 IDE Hard Drive LED
   1 - Signal
   2 - GND
   3 - GND
   4 - Signal

J63 Serial A 16450 UART  IRQ 4  COM 1 or COM3

J64 Serial B 16450 UART  IRQ 3  COM 2 or COM4

{ A 16550 UART is present only if the Super I/O Chip is National PC87312 }

J16 Parallel Port connector  IRQ 7, @3BCh or @378h

W16 Printer Port mode
   Pin 2-3 - Output Mode
   Pin 1-2 - Input Mode  {scanner}


CPU Clock Speed      W54         W55        SW2 #6      SW2 #7

    25Mhz            ON          ON         OFF         OFF
    33Mhz            ON          OFF        ON          OFF

PQFP i486SX          ZIF Socket          W50      W66            W67
Surface Mounted

None                 i486SX              1-2      2-3            3-4
None                 i486DX /DX2         2-3      1-2 & 3-4      1-2

i486SX               None                1-2      2-3            3-4
i486SX               i487SX              1-2      1-2 & 3-4      3-4
i486SX               i486DX /DX2         2-3      1-2 & 3-4      1-2
i486SX               OverDRIVE           1-2      1-2 & 3-4      2-3


W68  When Local Bus Master Controllers are installed {VL SCSI},
     jumper W68 must be placed on Pins 1-2 to support local bus DMA.

     Default 2-3

W69  Write protect Flash BIOS programing : W69 - installed
     Update Flash BIOS Programming       : W69 - open

W65  BIOS Recovery {DO NOT MOVE ! Removing this jumper will erase the BIOS !}

Cache configuration
Direct Mapped Write Through
============================

Cache  W20   W21   W52   W44
---------------------------
64K    N/C   N/C   N/C   2-3
256K   1-2   1-2   1-2   1-2
```

N/C = Not Connected