1. What is changed ?

Up to version 6.24 the steps needed to built cues were: make memories out of presets, and use them to make sequences or playbacks. It wasn't possible to make sub-cues, better known as point-cues (insertions between 2 cues). Before programming, a choice had to be made between replace-all mode on or off. It wasn't easy to set-up different timings for the various functions. And there was a limit of 140 fixtures.

Many of those things will be simplified in version 7.0. Of course, it is still possible to use the old way. Older shows can still be used, they will be converted to the new data-format, and you can use them as before. Because of the conversion, it's not possible to use a converted show on an old software-version.

What is changed :

- ***Point-cues :***   *it is possible to program 10 (point) cues, between 2 cues. In the theatre world, it is a custom to work with successive cues. Up to now, it was impossible to insert cues between already programmed cues, unless some of them were left blank. Now it is possible to insert 10 point cues between 2 main cues.*

- ***Cue memories :***   *The old way was : Make presets, with those presets make memories. Then use those memories to built sequences or playbacks in cues. Only a fade-in time could be given to the memory (playback timings, sequence timings). This way of working can still be used, but the whole thing can be simplified. In stead of making memories, cue-memories can be built, the values are placed immediately in the cue. Delay-in, fade-in, delay-out, fade-out and hold times can be added to this cue-memory and on top of this, all those timings can be put separate on the different channels.*

- ***Transparent mode :***   *This function replaces the old REPLACE-ALL mode. **Attention : the function works now inverted. Transparent mode ON** is the same as **replace all mode OFF.** Also the show will now be saved with the settings you've made here (it's not necessary any more to push the SHIFT-CUE button each time you've started-up, just program it once). You can also split up the transparent-mode:*
    - *playbacks and sequences separately.*
    - *each cue can have it's own mode.*

- ***More fixtures :***   *700 fixtures (10 pages of 70 pieces) can be controlled.*

- More memories and more cues :   *The total number of memories and cues has increased : there are 4,000 memories, 2,000 cue-memories and 11,200 cues that can be used.*

2. Upgrade of the controller

It is necessary to expand the main memory of the controller *to work without problems with version 7.0 (**see appendix**). **The controller needs at least 32 Mb internal memory.** When shows with many fixtures are used, the performance of the controller can be increased with faster processors like a Pentium 200 MHz.*

Two keys have to be swapped on the front panel : *Swap key-caps **CTRL CHAN** (next to the GET key) and **RGB** (control channels). This can easily be done when the key-cap is lifted with a small screwdriver.*

3. Point-cues

Between each of the 1,120 cues, 10 sub-cues or point-cues can be programmed.

To activate a cue (2 possibilities):

- ***Select a cue-page and select a cue (1-70). With the keypad numbers (0-9) the sub or point cue can be selected.*** *(Remark when one of the cues (1-70) is programmed, the number 0 on the keypad blinks. This indicates that ex. Cue 70 is in fact, cue 70.0).*

   When on the keypad a number :
           - blinks : point cue is programmed and active.
           - lights up constant : point cue is programmed, not active.

- ***Press*** *(and hold) and select on the keypad the **relative cue number** (ex.*

   71.2). Accept by pressing *.*

   What are relative cue numbers :

           These are cue numbers taken to cue 1 cuepage 1
           There is no difference for cues on page 1.
                   Relative Cue 70.1 = cue page 1 pointcue 70.1

           For other cue pages
                   Relative Cue 71.1 = cue page 2 pointcue 1.1
                   Relative Cue 1120.9 = cue page 16 pointcue 70.9

    The relative cue numbers are shown on the screen.

<div style="background:#2d2066; color:white; padding:10px;">

PAGE 1   CUE 3.0   REL3.0

</div>

4. Cue memories

What is a cue memory ?

    The channel value(s) (+ effect channels) of one or more fixtures can be saved immediately to a cue without saving it first to a normal memory to use it later in a sequence or play-back. On top of this, fixture timings or channel timings are added to this memory.

    *For the **priorities of sequences and playbacks : this cue memory has to be seen as an imaginary sequence E** : the cue memory has the **lowest priority, followed by sequence D - C - B - A - Playback 42 ------- Playback 1 - Manual** (of course only when the same channels are involved and the channel is no dimmer channel).*

Saving of a cue memory

    Also here 2 possibilities :
    Suppose, some fixtures are put in their defaults. These default values can be saved to a cue memory :

-   ***Select a cuepage, press*** [TO] [CUE] *and select a cue number (1-70).*

    When necessary, a point cue can be chosen on the keypad (press first . (dot) and give in a number 1-9)

    Press 2x [RET] *to save.*

-   ***Using relative cues : press*** [TO] [CUE] *and give in the relative cue number on the keypad.*

    Press 2x [RET] *to save.*

Activating cue memories (ON / OFF)

    Like sequences, cue memories can be switched ON or OFF.

    Press [CUE] [ON] *. The box behind 'Cuefading Active' (on the screen) will become red.*

Timings on cue memories

You probably will have noticed a pop up window appearing on the screen when you hit the RET key the first time when saving the cue memory :
This screen can be called by:

Select a cue number and press :

CUE PG 1-CUE 1 ALL OPEN		

```
                    HOLD                  ....LINKED CUE

         DELAY IN    FADE IN    DELAY OUT        FADE OUT
```

PROG.	**POINT-MEMORY**	**FADE-MODE**
DATA	defined	1 ONLY FADEPERMISSION

DELAY-IN TIME	O min 0.0 sec.
FADE-IN TIME	O min 2.0 sec.
DELAY-OUT TIME	---- infinite ----
FADE-OUT TIME	O min 0.0 sec.

HOLD TIME	---- infinite ----
LINK	NO CUE LINKED
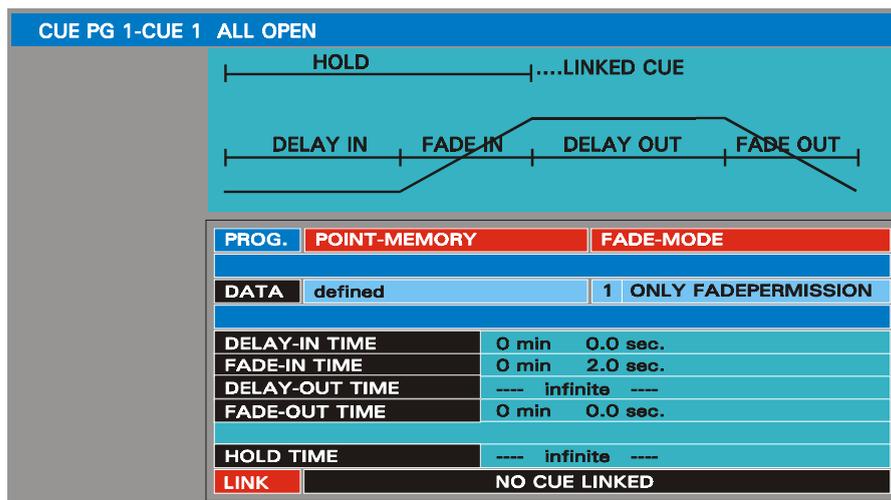
Delay-in   *This timing indicates a wait time before the fade time activates.*
Default = 0

Fade-in   *The time to fade-in from the start values to the values saved in the cue memory. Default = 2 sec. When this would be 0 sec, there will be no fading but a jump from the start values to the saved values.*

---

*Important note : **start values** are the channel values at the moment the cue was activated. Suppose, there is a cue memory with channel values for Pan/Tilt somewhere at the right on the stage. When this cue memory is activated and at the moment of activation, Pan/Tilt was in the middle of the stage, then the start values are : middle of the stage. The cue memory will move Pan/Tilt from the middle to the right. When at the moment of activation, Pan/Tilt was on the left (start value= left), the cue memory will move Pan/Tilt from the left to the right. This is not only for Pan/Tilt values, but for all channel values.*

Delay-out   *The channel values will be kept at the level as programmed in the cue memory as long as the delay-out time.Default = infinite. This means that the channel values will be kept 'at level' as long as they are not changed by something else, or by another cue.*

Fade-out   *The time to fade-out from the channel values, programmed in the cue memory, to the start values. (See the note above for a definition of the start values). Default = 0. Of course, **there will be never a fade-out if the delay-out is infinite.***

Hold   *The time to link to an other cue (link cue has to be defined, or this timing will be ignored). **!! Attention on the hold time. The timer will start when the cue is activated, this means at the same time when the other timers are activated.** When the hold time < delay-in time + fade-in time, nothing will happen or the fading will be broken off.*

Linking of a cue

*Cues can be activated automatically by linking them to other cues. **The hold time must be a valid time, and not infinite,** or there will be no linking.*

Cues can be linked to themselves.

Attention :   *When there are no valid delay-out and fade-out timings, or when the delay-in is longer than the hold, you can have strange results, since the start values are taken when the cue is reactivated by its own link.(see fig).*
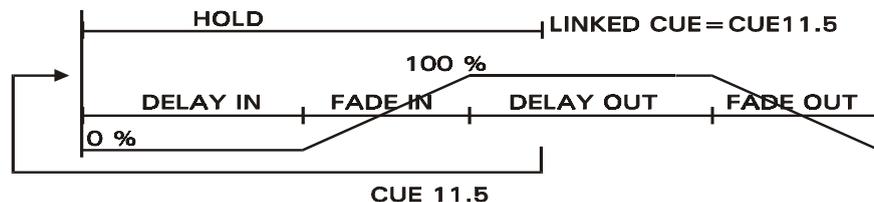
(Fig : the start value when activated = 0%. The delay-in is active, nothing will happen. The fade-in activates, channel values will fade to 100%. Suppose, in the middle of the delay-out, the hold timer overruns and the cue will link back to itself. This means that the start value when it is reactivated = 100%. Since start and end values are the same, nothing will happen any more.)

---

*Important note : When linking is active, **ONLY THOSE CHANNELS FILLED IN INTO THE CUE MEMORY WILL BE LINKED TO THE NEXT CUE.** When a cue memory has only Pan/Tilt info, and this cue is linked to a cue memory with Pan/Tilt and dimmer info, then only the Pan/Tilt of the linked cue will be activated since there was no dimmer info in the first cue memory.*

Changing of the timer values

To walk through the timers, use the [2↓] [8↑] keys.

To change the highlighted timer, press : [EDIT]

Use the keypad and the [@] key to change the timer value, followed by [RET]

Linking of a cue

Press [LINK] and select a cue.

Making changes to a cue memory

There are several ways to call and change an existing cue memory :

- open with [EDIT] [CUE] the timer screen and go to the top option

(defined), press now the [EDIT] key.

- or press [GET] [CUE] and select the cue.

It is now possible to change the memory values. Save the changes with [RET]

Adjusting timers of individual channels

The fade-in, delay-in, fade-out, delay-out and hold timings can be changed for the individual channels in the cue memory, in regard to the default timings of the cue memory. Use the same rules as used in the default timings.

To change a channel timer :

open the cue memory (see previous paragraph) , select a fixture and a control

channel (color, gobo, Pan, Tilt, P/T...) . Press [Ctrl Chan.]

(Remember : this key was swapped with the RGB key)

This screen will appear on the monitor :

MAC 500 DMX 4		CONTROL		CHANNELS		
PAN	DELAY-IN	FADE-IN	DELAY-OUT	FADE-OUT	HOLD	Timing on: 9 : PAN 10:TILT 11:P/T EFF

ADDR 1 LINE 1 DMXOUT

PAGE 1	MINUTE VALUES [P/T TIMINGS]					
	1	2	3	4	5	6
1	20	0m 0.0s	0m 2.0s	INFIN	0m 0.0s	INFIN
2		0m 0.0s	0m 2.0s	INFIN	0m 0.0s	INFIN
3		0m 0.0s	0m 2.0s	INFIN	0m 0.0s	INFIN
4		0m 0.0s	0m 2.0s	INFIN	0m 0.0s	INFIN
5		0m 0.0s	0m 2.0s	INFIN	0m 0.0s	INFIN
6		0m 0.0s	0m 2.0s	INFIN	0m 0.0s	INFIN
7		0m 0.0s	0m 2.0s	INFIN	0m 0.0s	INFIN
8		0m 0.0s	0m 2.0s	INFIN	0m 0.0s	INFIN
9		0m 0.0s	0m 2.0s	INFIN	0m 0.0s	INFIN
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
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32						
33						
34						
35						

The dark colored values represent the default values saved for the cue memory.

Every channel of every fixture can have different timings in regard to the defaults.
Pay attention : if a timer is changed, it is changed for the channel itself and for his effect channel. One of both, (9: channel   10 : effect) or in case P/T was chosen as channel (9 : Pan   10 : Tilt   11 : effect (in this example)), can be deactivated by keys (9, 10, 11) in the control channels key selection window.
- *The text color on the monitor will be :*
  - *Yellow : if active*
  - *blue : if not active*

Don't forget to save with

> *Remark :*   *When the hold time of a channel differs from the cue default hold time, the link to the next cue will happen sooner or later as for the other channels. This way, a phase shift can be created.*

5. Transparent mode

The meaning of **Replace-all** *mode is changed.*

In earlier software versions, when **Replace-all** *was active, all sequences and all playbacks were replaced by those of the new selected cue.*

Replace-all mode *is now replaced by* **Transparent** *mode, and its meaning is inversed.*

> *Before (***replace-all mode on***) = Now (***transparent mode off***)*

It is also possible to select a different mode for sequences and playbacks and this can differ for each cue.

Press :

Next screen will open :

EDIT TRANSPARANT MODE	
SHOW DEFAULT	
PLAYBACKS TRANSPARANT	ON
SEQUENCES TRANSPARANT	ON
FOR CUE Page 1 Cue 1.0	
SHOW DEFAULT	ON
PLAYBACKS TRANSPARANT	DEFAULT

> *Show default :*   *These are the defaults for the show. They are saved with the show, so it's not necessary any more to adjust them each time the show is loaded.*

> *For cue Page X Cue x.x :*   *These are the settings for the last selected cue. To change the settings for a cue, first select the cue, then open this window.*

6. More fixtures

It is possible to set-up 10 pages of 70 fixtures. Therefore the text on the fixture selection keys is changed :

 Is changed by 'Fixture PgUp' and 'Fixture PgDn'

In the **SETUP** *, first the page has to be chosen, then the stage has to be filled with fixtures. It is still possible to change a fixture from one page to an other.*

To make a quick selection:

Press both keys at the same time and activate the page (1 to 10) with the keys (1-70).

7. Naming programmed groups of fixtures.

It is possible to give programmed groups of fixtures a name.

Go to fixture mode, *press* *and select the groep (1-16). Give in the name.*

8. Playback wing functions

If the controller is equipped with a playback wing (internal or external), certain functions become easier in use.
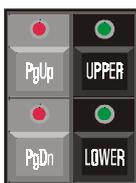
 Display functions :

    PgUp & PgDn   *Are used to visualize (on the displays and on screen) the text mode of the playbacks. 3 possibilities : or memory names, or memory numbers, or the playback mode (flash, toggle, kill).*

    Upper & Lower   *To visualize playbacks 11-26 or 27-42 on the displays.*

     Not yet in use..

Only EVEN and ODD are used to select even or odd fixture numbers.

To change the transparent mode of sequences and playbacks.

   Led blinks : *Sequences and/or playbacks **of the active cue** are at the show defaults.*

   Led on :   *Sequences and/or playbacks : transparent mode ON **of the active cue.***

   Led off :   *Sequences and/or playbacks : transparent mode OFF **of the active cue.***

To change the mode of the playbacks :
 Press a function (flash, toggle, kill) and select at the same time one or more playbacks or select the ALL key.

Remark : Playb Solo is not in use.

Remark : *On certain controllers, it is possible you have to change the position of the key caps.*

With the wing, it is easier to change the cue timers :

 1. Default cue timers :

  First select a CUE.
  Select (delay-in, fade-in, delay-out, fade-out or hold) and press at the same time the CUE button. You can enter the time now.

2. Channel timers for entire fixtures

> *First go to fixture mode,*
> *Select (delay-in, fade-in, delay-out, fade-out or hold) and press*
> *at the same time the fixture number(s). Release both. Enter the*
> *time.*

3. Channel timers :

> *In the previous step, you probably will have noticed that, when*
> *the fixtures were selected, the control channel leds and preset*
> *leds were blinking. Default, all channels are selected. It is now*
> *possible to deselect the channels by pressing their keys. (Remark,*
> *the selections on the presets are functions like (Pan/Tilt, color,*
> *gobo or effect), they don't represent presets here.)*

> *Split is not in use.*

8. An example of programming cue memories.

8.1 Example 1
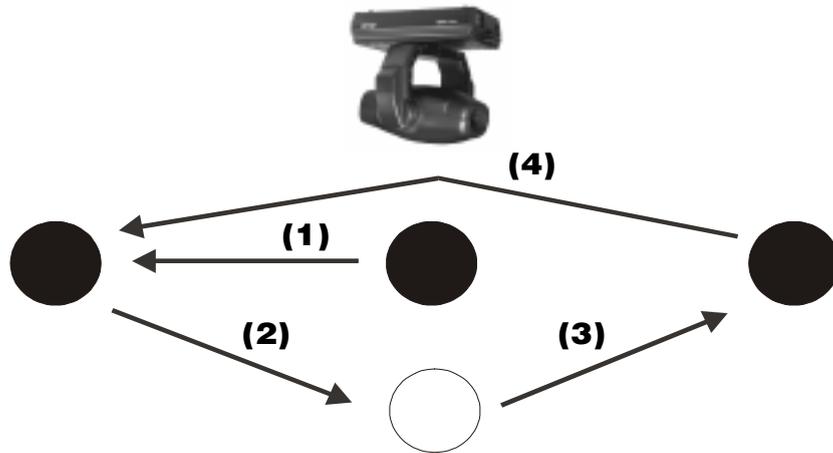
Suppose : We have a MAC500. In step 1 we move to the left with the dimmer closed. In step 2 and 3 we move to the right while the dimmer opens and closes. In step 4 we go back, fast, to the left and we repeat steps 2, 3 and 4.

The steps needed are :
  1: *Pan/Tilt in the middle, dimmer closed (cuemem 1) (link to cuemem 2)*
  2: *Pan/Tilt left, dimmer closed (cuemem 2) (link to cuemem 3)*
  3: *Pan/Tilt right, dimmer open, fade-in, delay-out, fade-out on the dimmer (cuemem 3) (link to cuemem 3)*

Explanation :
  Cuemem 1 :   We only give in values for Pan/Tilt (middle) and dimmer (closed).
                  - delay-in (cuemem)= 0 sec
                  - fade-in (cuemem)= 0 sec
                  - delay-out (cuemem) = infinite
                  - fade-out (cuemem) = 0 sec
                  - hold = 0 sec
                  - Link to cuemem 2

  Cuemem 2 :   Pan/Tilt (left) and dimmer (closed)
                  - delay-in (cuemem)= 0 sec
                  - fade-in (cuemem)= 0 sec (this means fast to the right)
                  - delay-out (cuemem) = infinite
                  - fade-out (cuemem) = 0 sec
                  - hold = 0 sec
                  - Link to cuemem 3

Cuemem 3 :   *Pan/Tilt (right) and dimmer (open)*

      - delay-in (cuemem)= 0 sec

      - fade-in (cuemem)= 3 sec   *(This is the default time of the cuem-em and for the motion from the left to the right)*

      - delay-out (cuemem) = 0 sec   *(Not infinite because we will use the fade-out)*

      - fade-out (cuemem) = 0 sec   *(Fast back to the left because we link back to the same cuemem)*

      - hold = 3 sec   *(Because the sum of delay-in, fade-in, delay-out and fade-out is 3 sec there has to be a hold time of at least 3 sec. If it is less, the Pan/Tilt motion from left to right will not be finished and, because we link back, the start values of Pan/Tilt will be somewhere in the middle of the fading (so after a while nothing will happen any more))*

      - Link to cuemem 3   *(A fade-out is used, this means that we fade back to the start values when cuemem 3 was activated (Pan/Tilt was at the left)).*

For the dimmer channel, the values of fade-in and fade-out have to differ from the cue defaults, because in the middle of the motion from left to right, the dimmer has to be open.

      - delay-in (dimmer)= 0 sec

      - fade-in (dimmer) = 1.5 sec   *(fade dimmer only, to open in 1.5 sec)*

      - delay-out (dimmer) = 0 sec

      - fade-out (dimmer) = 1.5 sec   *(fade dimmer back to closed (start value) in 1.5 sec)*

Remark 1 :   *Because all cue memories are linked, we have to make all cue memories with values for Pan/Tilt and for dimmer. If we forget the dimmer, the dimmer channel will not be linked.*

Remark 2 :   *If the hold time of the dimmer channels differs from the 3 sec default of the cuemem, there will be a phase shift to the Pan/Tilt motion, because the dimmer will be linked at a different time.*

Remark 3 :   *To keep things simple, we only used Pan/Tilt in this example. You can always extend this example to more channels or more fixtures.*

Remark 4 :   *Remember, Cue fading must be active, or the cues won't start.*

Activate by   [CUE] [ON]   *Until the box behind 'Cuefading Active' is red.*

8.2 Example 2
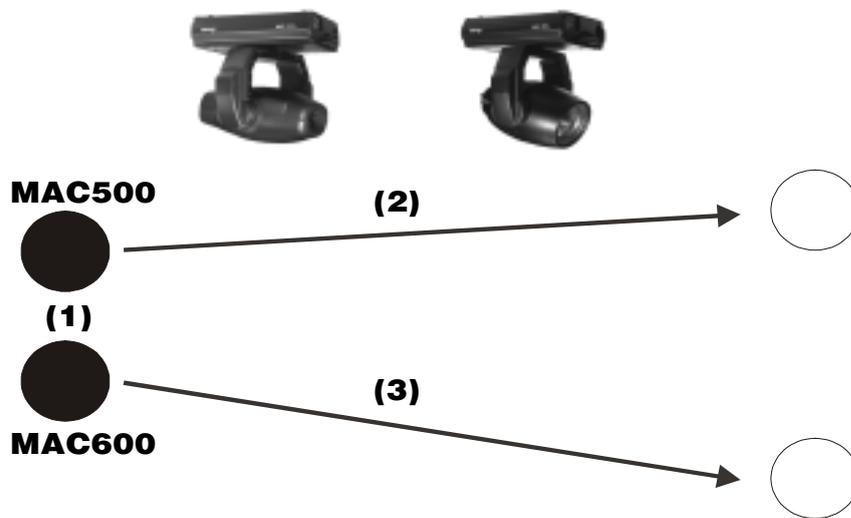
We start with a MAC500 and a MAC600 from the left, but we want to have the possibility to go to the right with both fixtures at a different moment (dimmer open) and with a different speed.

We use 3 cue memories :
    1 : cuemem 1 for both fixtures : dimmer closed, left
    2 : cuemem 2 for the MAC500 : Pan/Tilt right, dimmer open
    3 : cuemem 3 for the MAC600 : Pan/Tilt right, dimmer open.

Suppose the MAC500 has to go to the right in 10 sec and the MAC600 in 30 sec.

   Cuemem 1 :   *for both fixtures : Pan/Tilt left, dimmer closed*
          - delay-in (cuemem)= 0 sec
          - fade-in (cuemem)= 0 sec   *(Fast)*
          - delay-out (cuemem) = infinite
          - fade-out (cuemem) = 0 sec
          - hold = infinite
          - Link = -----

   Cuemem 2 :   *Only values for the MAC500 : Pan/Tilt right, dimmer open*
          - delay-in (cuemem)= 0 sec
          - fade-in (cuemem)= 10 sec
          - delay-out (cuemem) = infinite
          - fade-out (cuemem) = 0 sec
          - hold = infinite
          - Link = -----

Cuemem 3 :   *Only values for the MAC600 : Pan/Tilt right, dimmer open*
                        - delay-in (cuemem)= 0 sec
                        - fade-in (cuemem)= 30 sec
                        - delay-out (cuemem) = infinite
                        - fade-out (cuemem) = 0 sec
                        - hold = infinite
                        - Link = -----

When we start cue 1, both fixtures will go fast to the left with their dimmers closed.
We start cue 2 : The MAC500 will go to the left in 10 sec. (Dimmer opens slowly)
We start cue 3 : The MAC600 will go to the left in 30 sec. (Dimmer opens slowly)

Remark :   *This example shows that we can make cue memories for fixtures apart.*
                      We can do this only for fixture channels or only for groups of fixtures
                      too.

9. Appendix

9.1 Adding memory to the controller.

If you install software version 6.2, we recommend that you have 16 Mb of RAM installed in the controller. For versions higher than version 6.2, we recommend 32 Mb of RAM.
When starting up the controller, it will check out the memory. There you can see how much is installed.

Use the 72-pin SIMM modules. You can have them in 8, 16 or 32 Mb. Try to use LOW PROFILE SIMM's .

The example shows an update from 16 Mb to 32 Mb using 2 SIMM's of 8 Mb.

Open the P1 front.
Depending on the mainboard installed in the controller, use one of both configurations.
Push the SIMM's gently in the 2 free SIMM slots. They must click into the slot.

PAM-0065I Mainboard   PAM-0066I Mainboard
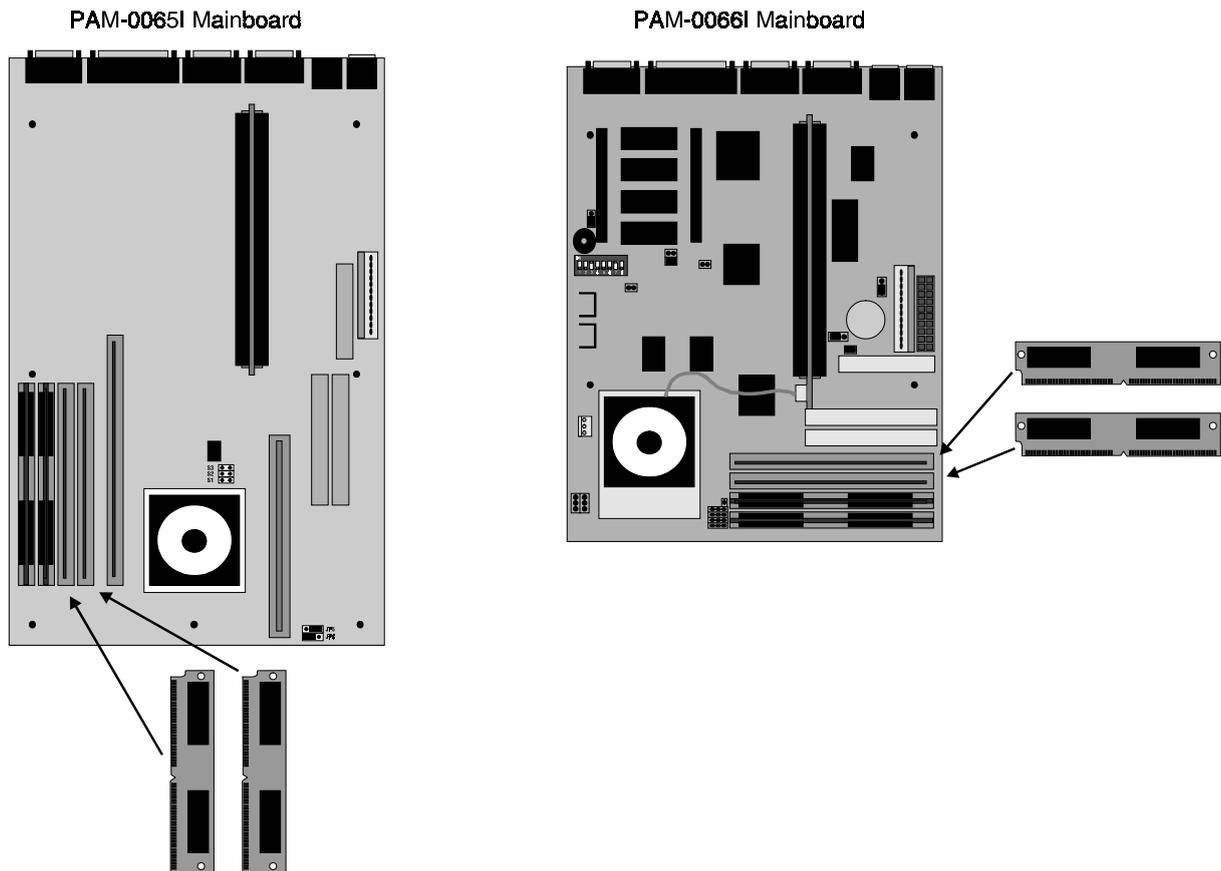
Close the controller and restart.

If now the monitor stays black, and you hear some beeping sounds :
- the SIMM's may be damaged,
- or you have used the wrong type of SIMM's
- or they make bad contact to the mainboard.

In some occasions, the mainboard goes into the setup program, because a new configuration has been detected. If this is the case, pick the item EXIT AND SAVE SETUP. Watch the memory count when starting up. It must now test to 32768K.

9.2 Changing the mainprocessor

The controllers are aquipped with a Pentium 133 MHz processor. You can speed up the processor by using a 200 MHz Pentium.

If you have a **PAM-0065I mainboard** you can go up to 200MHz Pentium. **If Pentium MMX processors are used !!! set jumpers JP3=on , S4, S5, S6 = OFF!!!**

If you have a **PAM-0066I mainboard**, you can go up to a 233MHz Pentium MMX processor.

Both board support also Cyrix 6x86 and AMD (K5 or K6) CPU's.

If you buy a new CPU, buy also a cooling fan for the CPU, because the current fan is glued on the CPU.

In the example we will use Intel CPU's. If you want to use a different brand (Cyrix or AMD), we recommend that you contact your local Martin dealer or contact R&D International (phone 32 11 67 39 00 mail : caseconsole@telesoft.be)

-   Open the P1 front panel
-   Remove, if necessary, the interfaces.
-   Disconnect the power of the current installed CPU fan.
-   Remove the current CPU by lifting the lever.
-   Install the new CPU : **watch pin 1. On the CPU there is a dot marking pin 1. On the socket, pin 1 is always at the top of the lever. (See drawing).**
-   Push down the lever and check if the CPU is fixed.
-   Place the cooling fan, and connect its power.
-   Set Jumper and/or switch settings on the mainboard (see below).

PAM-0065I Mainboard   PAM-0066I Mainboard

pin 1   Pin 1

Pentium CPU
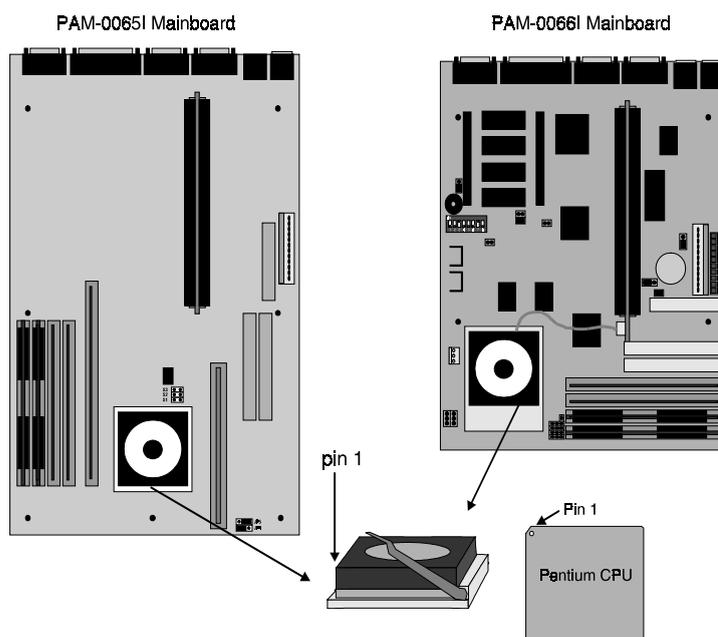
PAM-0065I Mainboard
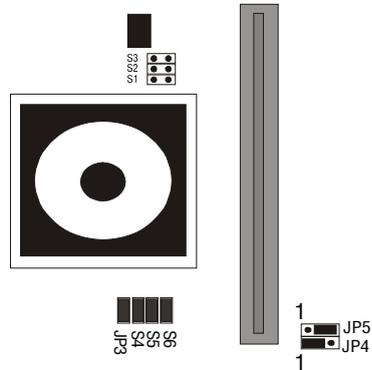
Processor	S1	S2	S3	JP4	JP5
Intel Pentium 75 MHz	Close	Close	Open	1-2	1-2
Intel Pentium 90 Mhz	Close	Open	Open	1-2	1-2
Intel Pentium 100 Mhz	Open	Open	Open	1-2	1-2
Intel Pentium 120 Mhz	Close	Open	Open	1-2	2-3
Intel Pentium 133 Mhz	Open	Open	Open	1-2	2-3
Intel Pentium 150 Mhz	Close	Open	Open	2-3	2-3
Intel Pentium 166 Mhz	Open	Open	Open	2-3	2-3
Intel Pentium 180 Mhz	Close	Open	Open	2-3	1-2
Intel Pentium 200 Mhz	Open	Open	Open	2-3	1-2

Note : If a Pentium MMX (up to 200MHz) is used : set Jp3, S4, S5, S6 :

PAM-0066I Mainboard
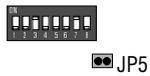
CPU Type	Freq.	SW1-3	SW1-4	SW1-5	SW1-6	SW1-7	SW1-8
Intel Pentium	90 MHz	OFF	OFF	OFF	ON	OFF	OFF
Intel Pentium	100 MHz	OFF	OFF	OFF	OFF	ON	OFF
Intel Pentium	120 MHz	ON	OFF	OFF	ON	OFF	OFF
Intel Pentium	133 MHz	ON	OFF	OFF	OFF	ON	OFF
Intel Pentium	166 MHz	ON	ON	OFF	OFF	ON	OFF
Intel Pentium	200 MHz	OFF	ON	OFF	OFF	ON	OFF
Intel Pentium MMX	166 MHz	ON	ON	OFF	OFF	ON	OFF
Intel Pentium MMX	200 MHz	OFF	ON	OFF	OFF	ON	OFF
Intel Pentium MMX	233 MHz	OFF	OFF	OFF	OFF	ON	OFF