Using 9S12MX1 256Kbyte card with Adapt9S12E128 and chip select XCS*

External Memory is mapped at **PPAGE $10 to $17** with **Internal FLASH enabled.** It is important to note that the Internal FLASH and external RAM are both accessible. **Please note that the 9S12MX1 1Mbyte memory card will not work with this setup.**

RAM Hardware settings.

1. JB1 – 1.2 RAM CS1* check select
2. JB2 – 1.2 RAM CS2 check select
3. JB5 – 3.4 Latch decoding
4. JB6 – 1.2 A15/XA15 address select, XA15 for PAGING
5. JB7 – 1.2 A14/XA14 address select, XA14 for PAGING

The Adapt9S12E128 monitor program does not support expanded mode. It is therefore necessary to use the BDM pod to program the external RAM. The following registers need to be set before the external memory is accessible. The MCU registers are manipulated via a terminal program and a POD. The RAM is memory mapped at PPAGE $10 - $17. The fixed memory $4000 to $7FFF is moved to PPAGE = $3E.

PEAR ($0A) = $0C ->Enable LSTRE,RDWE = 1
MODE ($0B) = $E3 -> Enable MODC,MODA,MODB,EMK,EME = 1
EBICTL ($0E) = $01 -> Enable ESTR = 1
MISC ($13) = $0F ->Enable EXSTR1, EXSTR0,ROMHM,ROMON = 1

Using BDM pod with Terminal window

S>mm 0A 0C
S>mm 0B E3
S>mm 0E 01
S>mm 13 0F

Loading S Record to External RAM

Note that a program to be downloaded to RAM must be prepared such that the S Record generated is from PPAGE $10 to $17. Otherwise, it could be programmed into the wrong location.

Using a Terminal window and BDM pod, at the S> prompt:
S> load – Download the S Record to target device. Search for the file to be downloaded.

Note that for a program with interrupt(s), the internal FLASH has to be programmed with the interrupt service routine(s).

Executing the Loaded File

Once the S Record has been loaded, it can be executed by changing the PPAGE ($30) to where the program should be executed.

For example, where the program starts at PPAGE $10, type at the S> prompt:

S>mm 30 10
S>g 8000

Using 9S12MX1 256Kbyte and 1Mbyte card with Adapt9S12E128 and chip select ECS*

External Memory is mapped at **PPAGE $38 to $3F** for 256Kbyte and **PPAGE $00 to $3F** for 1Mbyte with **Internal FLASH disabled.** It is important to note that the external RAM is accessible and is mapped over the disabled internal FLASH.

256Kbyte RAM Hardware settings

1. **JB1 – 2.3 RAM CS1* check select**
2. **JB2 – 2.3 RAM CS2 check select**
3. **JB5 – 1.2 Latch decoding**
4. JB6 – 1.2 A15/XA15 address select, XA15 for PAGING
5. JB7 – 1.2 A14/XA14 address select, XA14 for PAGING

1Mbyte RAM Hardware settings

1. **JB1 – 2.3 RAM CS* check select**
2. **JB2 – 1.2 Address select**
3. **JB5 – 1.2 Latch decoding**
4. JB6 – 1.2 A15/XA15 address select, XA15 for PAGING
5. JB7 – 1.2 A14/XA14 address select, XA14 for PAGING

The Adapt9S12E128 monitor program does not support expanded mode. It is therefore necessary to use the BDM pod to program the external RAM. The following registers need to be set in order to make the external memory accessible. The MCU registers are manipulated using a terminal program and a BDM pod.

PEAR ($0A) = $0C ->Enable LSTRE,RDWE = 1
MODE ($0B) = $E3 -> Enable MODC,MODA,MODB,EMK,EME = 1
EBICTL ($0E) = $01 -> Enable ESTR = 1
MISC ($13) = $0C ->Enable EXSTR1, EXSTR0 = 1

Using the BDM pod with the terminal program, enter the following:

S>mm 0A 0C
S>mm 0B E3
S>mm 0E 01
S>mm 13 0C

Loading S Record to External RAM

Note that when downloading a program to RAM, the program must be such that the S Record file generated is from PPAGE $38 to $3F for 256Kbyte, or PPAGE $00 to $3F for 1Mbyte; otherwise it won't be programmed in the proper location.

Using a Terminal window and BDM pod, at the S> prompt enter:
S> load – Download the S Record to target device. Search for the file to be downloaded.

Executing the Loaded File

Once the S Record has been loaded, it can be executed by changing the PPAGE ($30) to the correct value (i.e. where the program should be executed).

For example, where the program starts at PPAGE $38, you would enter:

S>mm 30 38
S>g 8000