

STM is used to copy a “consecutive” collection of registers into consecutive fullwords in main storage. The collection of registers which is copied is specified by coding the beginning and ending registers as the first two operands. For instance,

```
STM R5, R8, XWORDS
```

would be used to copy registers 5, 6, 7, and 8. If the second operand specifies a lower register than the first operand, then a “wrap-around” occurs. For instance,

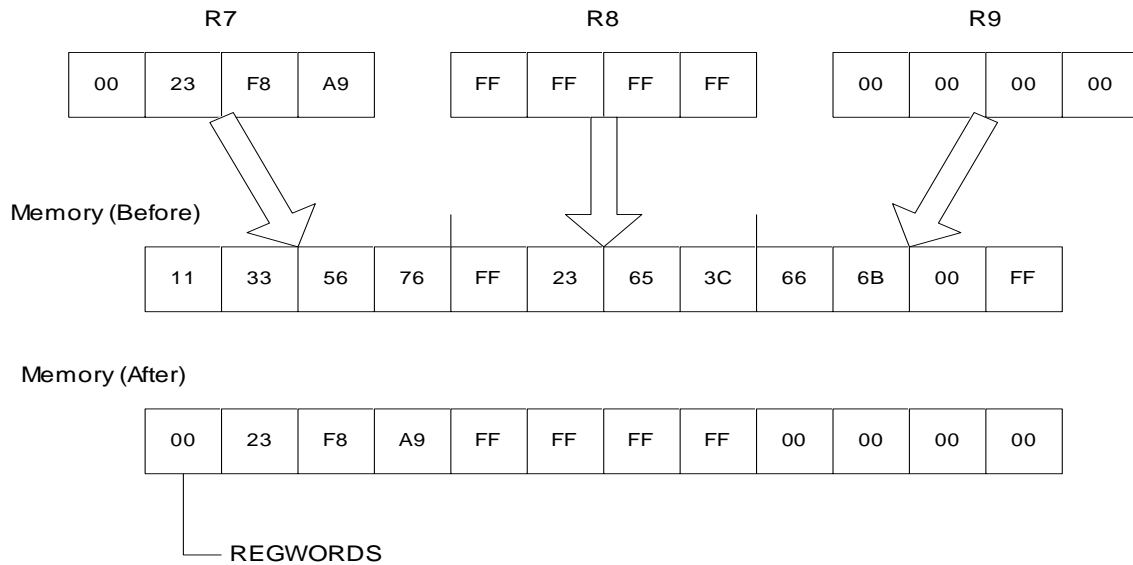
```
STM R14, R12, 12(R13)
```

would be used to copy registers 14, 15, 0, 1, ..., 12 - every register except 13.

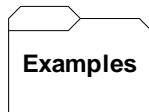
The registers are stored starting in the fullword address specified in the third operand. In the first example above, register 5 would be stored at XWORDS, register 6 at XWORDS+4, register 7 at XWORDS+8, and register 8 at XWORDS+12. In the second example, register 14 is stored at an explicit address - a 12 byte displacement off register 13. The other registers are consecutively stored.

Here is an example.

```
STM R7, R9, REGWORDS
```



In the example above, the consecutive range of registers (7, 8, and 9) are stored in consecutive fullwords in memory starting in the fullword specified as REGWORDS.



Some Unrelated STM's

```

XWORD    DS    F
...
STM      R5, R6, XWORD    XWORD    = CONTENTS (R5)
XWORD+4 = CONTENTS (R6)
STM      R15, R1, XWORD   XWORD    = CONTENTS (R15)
XWORD+4 = CONTENTS (R0)
XWORD+8 = CONTENTS (R1)
STM      R14, R12, 12 (R13) THIS STORES ALL REGISTERS EXCEPT
13
12 BYTES OFF REGISTER 13.  SEE
THE TOPIC ON PROGRAM LINKAGE

```

Tips

1) This statement is helpful for creating subroutines. Branch to a subroutine and immediately save the registers with **STM**. This allows your subroutine to freely use the registers. Before exiting your subroutine, restore the registers with **LM**. Create a register "save area" for each subroutine.

```

SUBRTN   BAS    R6, SUBRTN    CALL THE SUBROUTINE
...
EQU     *
STM     R14, R12, SUBSAVE    SAVE THE REGISTERS
... (SUBROUTINE CODE)
LM      R14, R12, SUBSAVE    RESTORE THE REGISTERS
BR      R6                    BRANCH BACK TO CALLER

```

SUBSAVE DS 15F
REGISTERS

FIFTEEN FULLWORDS FOR THE

2) Read about the role that STM plays in implementing the “linkage conventions” in **Program Linkage** .