
***** MP/M-86 Seminar Notes *****

(Edited by Emmanuel ROCHE.)

All Information Herein is Proprietary To Digital Research, Inc.

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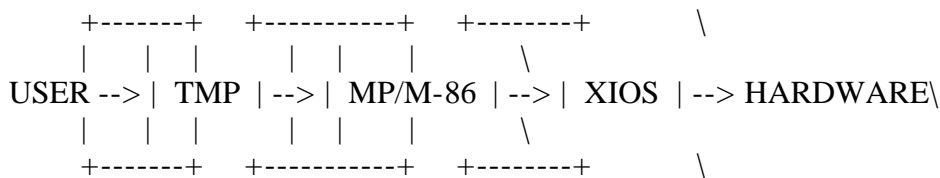
- o MPMLDR
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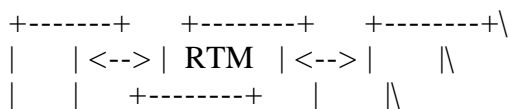
- o Appendices
 - o XIOS listing
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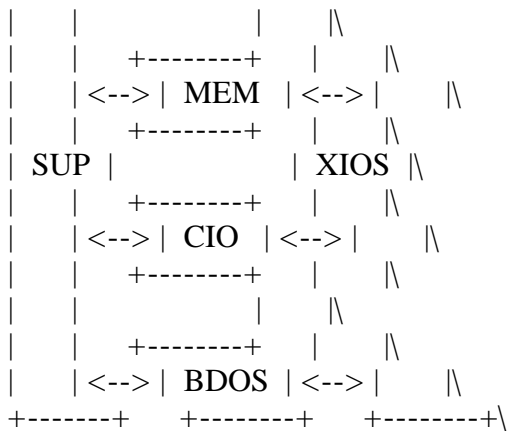
MP/M-86 OVERVIEW

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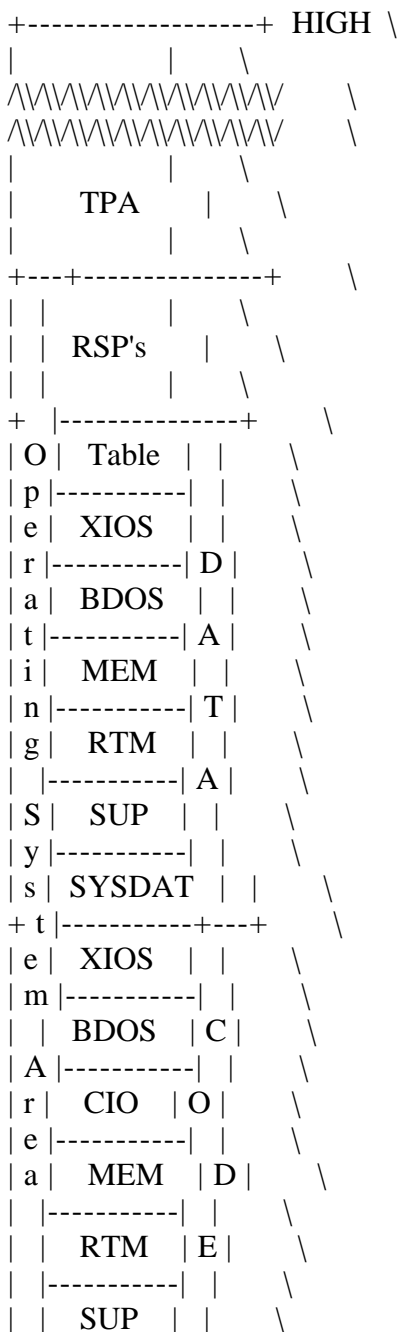


MP/M-86 "Plug-Compatible" Modules





MP/M-86 Memory Layout




```

+-----+-----+-----+-----+-----+-----+-----+-----+
38 | DISPATCHER | PDISP | \
+-----+-----+-----+-----+-----+-----+-----+-----+
40 | MPMSEG | RSPSEG | ENDSEG | MOD- | NCNS | \
| | | MAP | \
+-----+-----+-----+-----+-----+-----+-----+-----+
48 | NLST | NCCB | NUM- | SYS- | MMP | RES- | DAY | \
| | | FLAGS | DRIVE | ERVED | FILE | \
+-----+-----+-----+-----+-----+-----+-----+-----+
50 | TEMP | TICKS | FREE-ROOT | CCB | FLAGS | \
| DISK | /SEC | LOCKED-UNUSED | | | \
+-----+-----+-----+-----+-----+-----+-----+-----+
58 | MDUL | MFL | PUL | QUL | \
+-----+-----+-----+-----+-----+-----+-----+-----+
60 | QMAU | \
+-----+-----+-----+-----+-----+-----+-----+-----+
68 | RLR | DLR | DRL | PLR | \
+-----+-----+-----+-----+-----+-----+-----+-----+
70 | RESERVED | THRDRT | QLR | MAL | \
+-----+-----+-----+-----+-----+-----+-----+-----+
78 | VERSION | VERNUM | MPM VERNUM | TOD-DAY | \
+-----+-----+-----+-----+-----+-----+-----+-----+
80 | TOD- | TOD- | TOD- | NCON- | NLST- | NCIO- | RESERVED | \
| HR | MIN | SEC | DEV | DEV | DEV | | \
+-----+-----+-----+-----+-----+-----+-----+-----+
88 | RESERVED | LOCK-MAX | OPEN-MAX | RESERVED | \
+-----+-----+-----+-----+-----+-----+-----+-----+
90 | RESERVED | \
+-----+-----+-----+-----+-----+-----+-----+-----+
98 | RESERVED | \
+-----+-----+-----+-----+-----+-----+-----+-----+
A0 | FUNCTION TABLE | \
| | \
+-----+-----+-----+-----+-----+-----+-----+-----+

```

MP/M-86 Supervisor Module (SUP)

=====

- o Maps user functions into module functions
- o Contains non-kernel functions
- o Supports the network interface
- o Intermodule function interface
- o Initialization
- o User Program Interface
- o Contains non-kernel functions (do not use resources directly)
 - o Command Line Interpreter (CLI)

defaults inherited from parent
 RSP gets PD Addr
 CHAIN
 loads into same load memory
 LOAD
 supports shared code
 CALL RPL
 procedure must write message back

MP/M-86 System Queues

=====

Queue Descriptor (QD) Format:

```

+-----+-----+-----+-----+-----+-----+-----+-----+
00| *LINK |*NET |*ORG |  FLAGS  |  NAME  ... \
+-----+-----+-----+-----+-----+-----+-----+-----+
08|    ... NAME                | MSGLEN  ||
+-----+-----+-----+-----+-----+-----+-----+-----+
10| NMSGs  | *DQ  | *NQ  | *MSGCNT ||
+-----+-----+-----+-----+-----+-----+-----+-----+
18| *MSGOUT | BUFFER |                \
+-----+-----+-----+-----+                \

```

Queue Parameter Block (QPB) Format:

```

+-----+-----+-----+-----+-----+-----+-----+-----+
00|*FLAGS|*NET | QADDR  | NMSGs  | BUFFPTR ||
+-----+-----+-----+-----+-----+-----+-----+-----+
08|                NAME                ||
+-----+-----+-----+-----+-----+-----+-----+-----+

```

MP/M-86 Process description

=====

Process Descriptor (PD) Format:

```

+-----+-----+-----+-----+-----+-----+-----+-----+
00| LINK  | THREAD | STAT | PRIOR |  FLAGS  ||
+-----+-----+-----+-----+-----+-----+-----+-----+
08|                NAME                ||
+-----+-----+-----+-----+-----+-----+-----+-----+
10|  UDA  | DISK  | USER |*LDSK |*LUSR | *MEM  ||
+-----+-----+-----+-----+-----+-----+-----+-----+
18| RESERVED | *WAIT  | *ORG  | *NET  | PARENT ||
+-----+-----+-----+-----+-----+-----+-----+-----+
20| CNS  |*ABORT| RESERVED | LIST |  RESERVED  ||
+-----+-----+-----+-----+-----+-----+-----+-----+
28|  RESERVED  | *PRET  | *SCRATCH ||
+-----+-----+-----+-----+-----+-----+-----+-----+

```

User Data Area (UDA) Format:

```

+-----+-----+-----+-----+-----+-----+-----+-----+
00| DPARAM | DMA OFFSET | DMA SEGMENT |*FUNC |*SRCHL|\
+-----+-----+-----+-----+-----+-----+-----+-----+
08| *SEARCH FCB ADDRESS | *DCNT | *DBLK  \
+-----+-----+-----+-----+-----+-----+-----+-----+
10|*ERR- |*MULT-|          *DEFAULT PASSWORD ...  \
| MODE | CNT |                          \
+-----+-----+-----+-----+-----+-----+-----+-----+
18|*...PASSWORD | *PD_COUNT | *CUR_SP | *CUR_SS  \
+-----+-----+-----+-----+-----+-----+-----+-----+
20| AX  | BX  | CX  | DX  \
+-----+-----+-----+-----+-----+-----+-----+-----+
28| DI  | SI  | BP  | *WRKSEG  \
+-----+-----+-----+-----+-----+-----+-----+-----+
30| *RETSEG | *DS_SAVE | USER_SP | *USER-SS  \
+-----+-----+-----+-----+-----+-----+-----+-----+
38|      INT 0      |      INT 1      \
+-----+-----+-----+-----+-----+-----+-----+-----+
40|      INT 2      |      INT 3      \
+-----+-----+-----+-----+-----+-----+-----+-----+
48|      INT 4      | *ES_SAVE | *FLAG_SAVE  \
+-----+-----+-----+-----+-----+-----+-----+-----+
50| CS  | DS  | ES  | SS  \
+-----+-----+-----+-----+-----+-----+-----+-----+
58|      INT 224      |      INT 225      \
+-----+-----+-----+-----+-----+-----+-----+-----+
60| *IN_ |*STAT_|          RESERVED          \
| SYS | SAVE |                          \
+-----+-----+-----+-----+-----+-----+-----+-----+
68|          RESERVED          \
+-----+-----+-----+-----+-----+-----+-----+-----+
70|          \
|      USER SYSTEM STACK      \
|          \
F8|          \
+-----+-----+-----+-----+-----+-----+-----+-----+

```

Parent-Child Relationship

- o Console \
- o Disk \
- o User \
- o Printer \
- o Network \
- o Parent ID \
- o Termination\

MP/M-86 Memory Management

=====

Memory Parameter Block (MPB) Format:

```
+-----+-----+-----+-----+-----+-----+-----+-----+\
| START | MIN | MAX | *PDADDR |\
+-----+-----+-----+-----+-----+-----+-----+-----+\
| *FLAGS | \
+-----+-----+
```

FLAGS:

```
00001H LOAD \
00002H SHARE \
00004H CODE \
00008H\ \
... > RESERVED\
08000H/ \
```

Memory Free Parameter Block (MFPB) Format:

```
+-----+-----+-----+-----+\
| START | *PDADDR |\
+-----+-----+-----+-----+\
```

Memory Segment Descriptor (MSD) Format:

```
+-----+-----+-----+-----+-----+-----+-----+-----+\
| *LINK | *START | *LENGTH | *FLAGS |\
+-----+-----+-----+-----+-----+-----+-----+-----+\
| *MAU | \
+-----+-----+
```

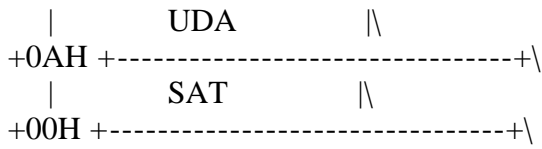
MP/M-86 Extended Fixed Partition Model

Memory Free List (MFL)

```
+-----+-----+
| o | \
+-----+-----+
V Memory Partition Descriptor (MPD) \
+-----+-----+-----+-----+-----+-----+-----+-----+\
| LINK | START | LENGTH | XXXXX | XXXXX |\
+-----+-----+-----+-----+-----+-----+-----+-----+\
V \
... \
+-----+-----+-----+
| 0 | MPD ... \
+-----+-----+-----+
```

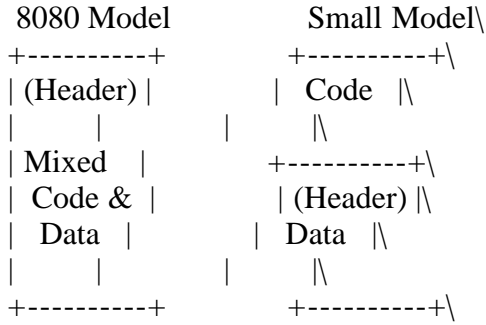
Memory Allocation List (MAL)

```
+-----+-----+
| o | \
```

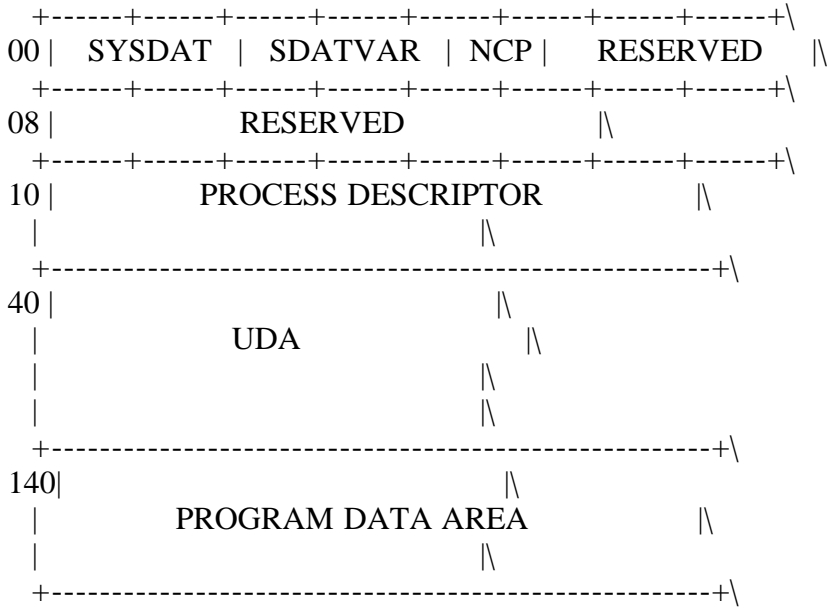



Resident System Process (RSP) Memory Models

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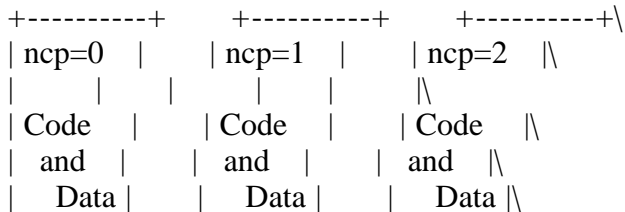
RSP Header Format:



Multiple Copies of RSP's

Example of 3 Copies of 8080 Model, Small Model and Shared Code Model

8080 Model:



```

|   |   |   |   |   \|
+-----+ +-----+ +-----+\

```

Small Model:

```

+-----+ +-----+ +-----+\
| Code |   | Code |   | Code  \|
|   |   |   |   |   \|
+-----+ +-----+ +-----+\
| ncp=0 |   | ncp=1 |   | ncp=2  \|
|   |   |   |   |   \|
| Data |   | Data |   | Data  \|
|   |   |   |   |   \|
+-----+ +-----+ +-----+\

```

Shared Code Model:

```

+-----+           \|
| Code |           \|
|   |           \|
+-----+           \|

+-----+ +-----+ +-----+\
| ncp=0 |   | ncp=1 |   | ncp=2  \|
|   |   |   |   |   \|
| Data |   | Data |   | Data  \|
|   |   |   |   |   \|
+-----+ +-----+ +-----+\

```

EOF