AMS MAPPER

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The AMS card has tons of documents as to its function and use. So to re-explain these docs would be pointless. Read the docs or find some, sorry but the RXB package is already huge.

In PASS mode the mapper register setup is equivalent to:

mapper address		mapper	page num		address range
HEX	Dec		HEX	Dec	memory area
>4004	16388	is MR02	>02	02	points to >2000 - >2FFF range
>4006	16390	is MR03	>03	03	points to >3000 - >3FFF range
>4014	16404	is MR10	>0A	10	points to >A000 - >AFFF range
>4016	16406	is MR11	>0B	11	points to >B000 - >BFFF range
>4018	16408	is MR12	>0C	12	points to >C000 - >CFFF range
>401A	16410	is MR13	>0D	13	points to >D000 - >DFFF range
>401C	16412	is MR14	>0E	14	points to >E000 - >EFFF range
>401E	16414	is MR15	>0F	15	points to >F000 - >FFFF range

(MR=Mapper Register)

In MAP mode the mapper register setup is equivalent to: EXAMPLE1

mapper address		mapper	page num		address range
HEX	Dec		HEX	Dec	memory area
>4004	16388	is MR02	>10	16	points to >2000 - >2FFF range
>4006	16390	is MR03	>11	17	points to >3000 - >3FFF range
>4014	16404	is MR10	>12	18	points to >A000 - >AFFF range
>4016	16406	is MR11	>13	19	points to >B000 - >BFFF range
>4018	16408	is MR12	>14	20	points to >C000 - >CFFF range
>401A	16410	is MR13	>15	21	points to >D000 - >DFFF range
>401C	16412	is MR14	>16	22	points to >E000 - >EFFF range
>401E	16414	is MR15	>17	23	points to >F000 - >FFFF range

(MR=Mapper Register)

In MAP mode the mapper register setup is equivalent to:
EXAMPLE2

mapper address		mapper	page num		address range
HEX	Dec		HEX	Dec	memory area
>4004	16388	is MR02 =	>19	= 31	points to >2000 - >2FFF range
>4006	16390	is MR03 =	>01	= 01	points to >3000 - >3FFF range
>4014	16404	is MR10 =	>09	= 09	points to >A000 - >AFFF range
>4016	16406	is MR11 =	>00	= 00	points to >B000 - >BFFF range
>4018	16408	is MR12 =	>07	= 07	points to >C000 - >CFFF range
>401A	16410	is MR13 =	>18	= 30	points to >D000 - >DFFF range
>401C	16412	is MR14 =	>05	= 05	points to >E000 - >EFFF range
>401E	16414	is MR15 =	>04	= 04	points to >F000 - >FFFF range

(MR=Mapper Register)

As you can see you can switch pages around all you want.

Each 4K page of the AMS memory can be engaged even into every 4K section of the 32K at once. Thus giving multiple copies of the same 4K in every 4K chunk. Doing this has few uses but it demonstrates the flexibility of the AMS mapper.
RXB uses AMS memory like this:

1. 32K is used for pass mode. Think of it like a normal TI. 24K for XB programs and variables, and lower 8K assembly support.

2. 32K is used for future use. Stashed away for RXB future use. Pages 0,1,4,5,6,7,8,9 are for future use.

3. 4K pages of the rest of the AMS are for AMSBANK, a RXB routine that needs two (2) 4K pages of the AMS for the lower 8K of Assembly support. Pages 16 to 255 AMSBANK.

4. If a 256K AMS is used by RXB then 32K PASS mode, 32K future use, and the rest for AMSBANK. So 32+32=64 and 256-64=192 then 192K of AMS 4K pages would be 192/4=48 or 48 pages of AMSBANK. Now the lower 8K needs two 4K pages because of course 8/4=2 so 48/2=24 and that means 24 8K assembly support routines from one XB program.

5. BSAVE and BLOAD in RXB are subroutines to save or load the lower 8K as Program Image files. 33 sectors in length they are only used by BSAVE or BLOAD. The reasons for BSAVE is to save the lower 8K in one easy to load chunk. ALSAVE that creates hidden loaders has one huge disadvantage. ALSAVE can only save one assembly support program at a time. Also it can't load more than one support routine and XB program to run it. BLOAD can load many support routines into the AMS and control them from one XB program. BLOAD and BSAVE can do what ALSAVE can't. Also up to 1Meg can be loaded into the AMS from one XB program and the same program run the assembly support routines.

6. ISR (Interrupt Service Routine) hooks are used by many XB programs so CALL ISROFF and CALL ISRON are for RXB to control the problems created by them. Also compatibility between software packages is ensured.

7. AMSBANK is the primary way RXB manages memory.
   pages 16 to 255 are numbers in AMSBANK as 0 to 240 so
   pages 2,3,10,11,12,13,14,15 are for pass mode and
   pages 0,1,4,5,6,7,8,9 are unused for future use.
   Thus 240*4=960K of AMS is in AMSBANK.