HP-41 MAXX MODULE

CREATED BY
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PRESENTATION BY
SYLVAIN CÔTÉ

HHC 2022

Bring 41CL technologies to all 41s

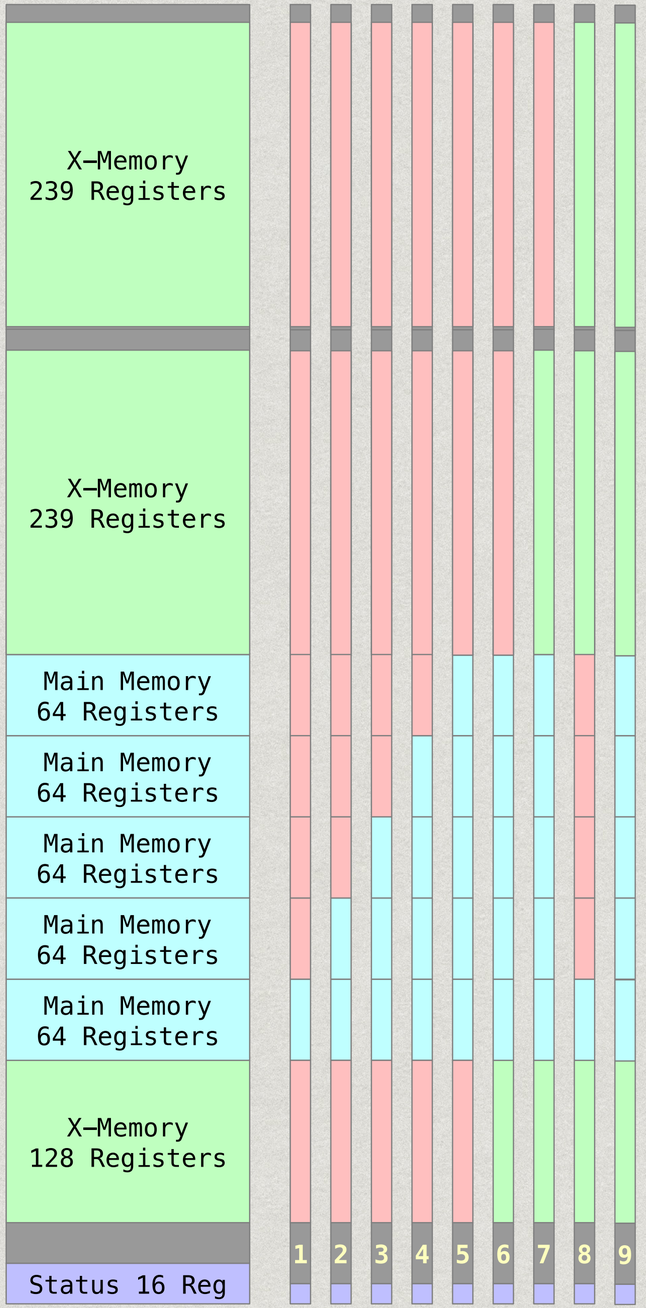
Feature	Target
Add the MAXX ROM.	CX : CV : C
If missing, add up to four memory modules.	C
If missing, add a Time module.	CV : C
If missing, add a X-Functions/Memory module.	CV : C
If missing, add up to two X-Memory modules.	CX : CV : C
Add three blocks of 1024 Expanded registers memory.	CX : CV : C
Add up to eight 4K pages of 10 bits RAM (QROM).	CX : CV : C
Add up to four 4K pages of banked 10 bits RAM. (banked QROM)	CX : CV : C

HP-41 MAXX ROM Images

41C ROM/QROM Address Space & Usage			MAXX in Port 1	MAXX in Port 2	MAXX in Port 3	MAXX in Port 4
15	Port 4	0xF				MAXX X-Functions
14		0xE				
13	Port 3	0xD			MAXX X-Functions	
12		0xC				
11	Port 2	0xB		MAXX X-Functions		
10		0xA				
9	Port 1	0x9	MAXX X-Functions			
8		0x8				
7	HP-IL	0x7				
6	Printer	0x6				
5	CX Timer	0x5	Timer	Timer	Timer	Timer
4	Special	0x4				
3	CX X-Functions	0x3				
2	41C/CV or 41CX Operating System	0x2				
1		0x1				
0		0x0				

If inserted into a CX or if there is a X-Functions module and/or a Timer module plugged in, the MAXX module will disable his own X-Functions and/or Timer ROM+hardware.

HP-41 MAXX RAM Registers



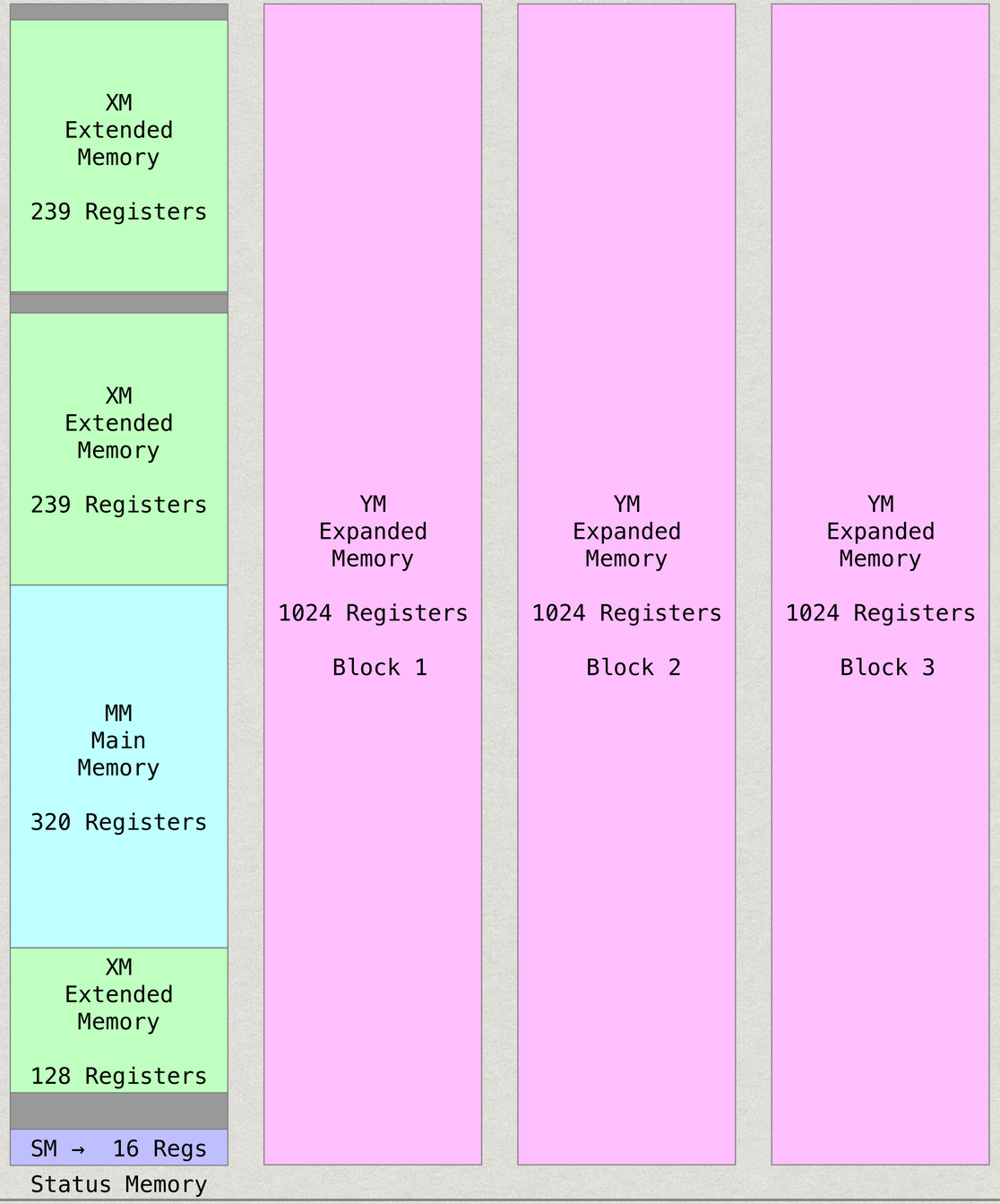
MAXX Module : RAM registers fill–in

Memory Holes

Configurations	
1) 41C	+ MAXX
2) 41C + MM	+ MAXX
3) 41C + MM x2	+ MAXX
4) 41C + MM x3	+ MAXX
5) 41C + QM 5) 41CV	+ MAXX + MAXX
5) 41C + QM 5) 41CV	+ MAXX + MAXX
6) 41C + QM + XFM 6) 41CV + XFM 6) 41CX	+ MAXX + MAXX + MAXX
7) 41C + QM + XFM + XM 7) 41CV + XFM + XM 7) 41CX + XM	+ MAXX + MAXX + MAXX
8) 41C + XFM + XM x2	+ MAXX
9) 41CV + XFM + XM x2 9) 41CX + XM x2	+ MAXX + MAXX
...	

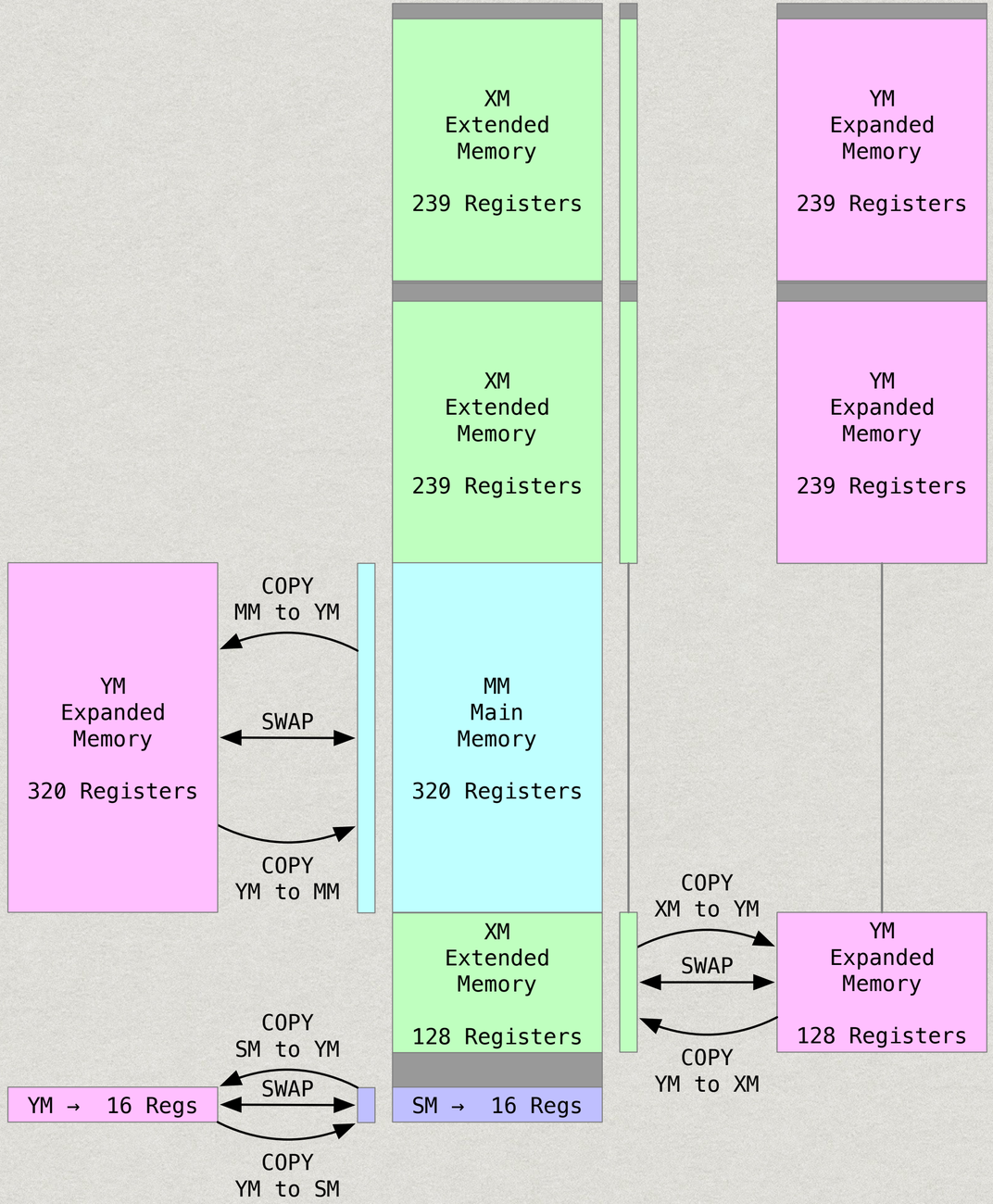
MM = 82106A Memory Module
QM = 82170A Quad Memory Module
XFM = 82180A X–Functions/Memory Module
XM = 82181A X–Memory Module
TM = 82182A Time Module

HP-41 MAXX Expanded Memory



HP-41 MAXX Expanded Memory Backup & Restore

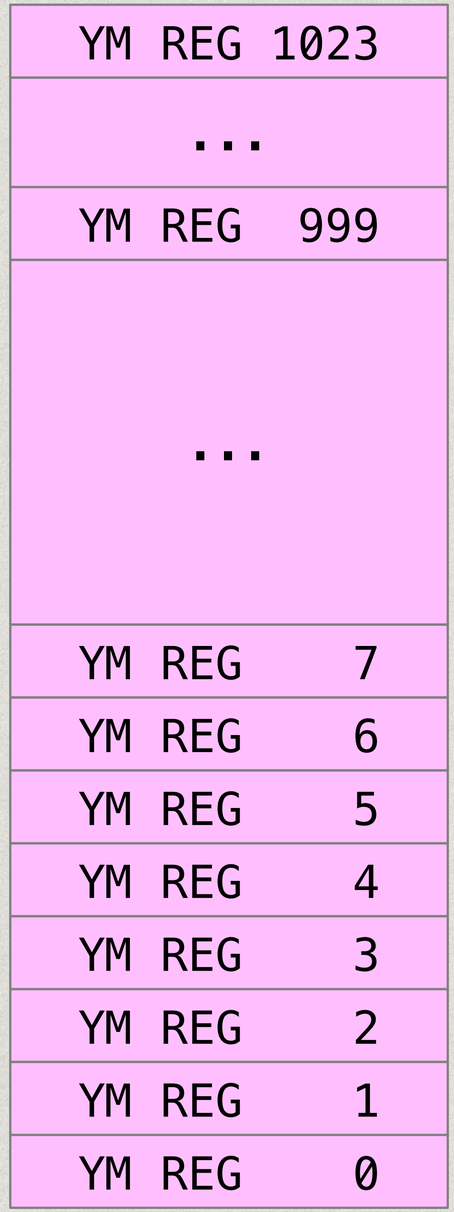
Function	Description
ST>YM	Move Status Block to Expanded Memory
ST<>YM	Exchange Status Block with Expanded Memory
YM>ST	Move Expanded Memory to Status Block
MM>YM	Move Main Memory to Expanded Memory
MM<>YM	Exchange Main Memory with Expanded Memory
YM>MM	Move Expanded Memory to Main Memory
XM>YM	Move Extended Memory to Expanded Memory
XM<>YM	Exchange Extended Memory with Expanded Memory
YM>XM	Move Expanded Memory to Extended Memory
YM<>YM	Exchange Expanded Memory Blocks
YMCLR	Clear Expanded Memory



HP-41 MAXX Expanded Memory Data Registers

Function	Description
YARC	Expanded Register Alpha Recall
YAST	Expanded Register Alpha Store
YDSE	Expanded Register Decrement, Skip If Equal
YISG	Expanded Register Increment, Skip If Greater
YRCL	Expanded Register Recall
YRC+	Expanded Register Recall and Add
YRC-	Expanded Register Recall and Subtract
YRC*	Expanded Register Recall and Multiply
YRC/	Expanded Register Recall and Divide
YSTO	Expanded Register Store
YST+	Expanded Register Store with Add
YST-	Expanded Register Store with Subtract
YST*	Expanded Register Store with Multiply
YST/	Expanded Register Store with Divide
YVEW	Expanded Register View
YX<>	Expanded Register Exchange with X-register

Function	Description
YRGMOV	Move Expanded Register Block
YRGSWP	Exchange Expanded Register Blocks
CLYRG	Clear Expanded Register Block
CLYRGX	Clear Expanded Register Block by X-register
A<>YRG	Exchange Alpha with Expanded Register Block
ST<>YRG	Exchange Stack with Expanded Register Block



YM Block 1 ONLY

HP-41 MAXX Port Memory

Function	Description
PMINI	Port Memory Initialize
PMCLR	Port Memory Clear
PMDIS	Port Memory Read Disable
PMEN	Port Memory Read Enable
PMWE	Port Memory Write Enable
PMWP	Port Memory Write Protect

Port Memory Bank 1 Only
PM Q-ROM
PM Q-ROM
PM Q-ROM
PM Q-ROM
PM Q-ROM
PM Q-ROM
PM Q-ROM
PM Q-ROM

Each of the above Port Memory Quasi-ROM can be enabled or disabled

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6	Printer	0x6
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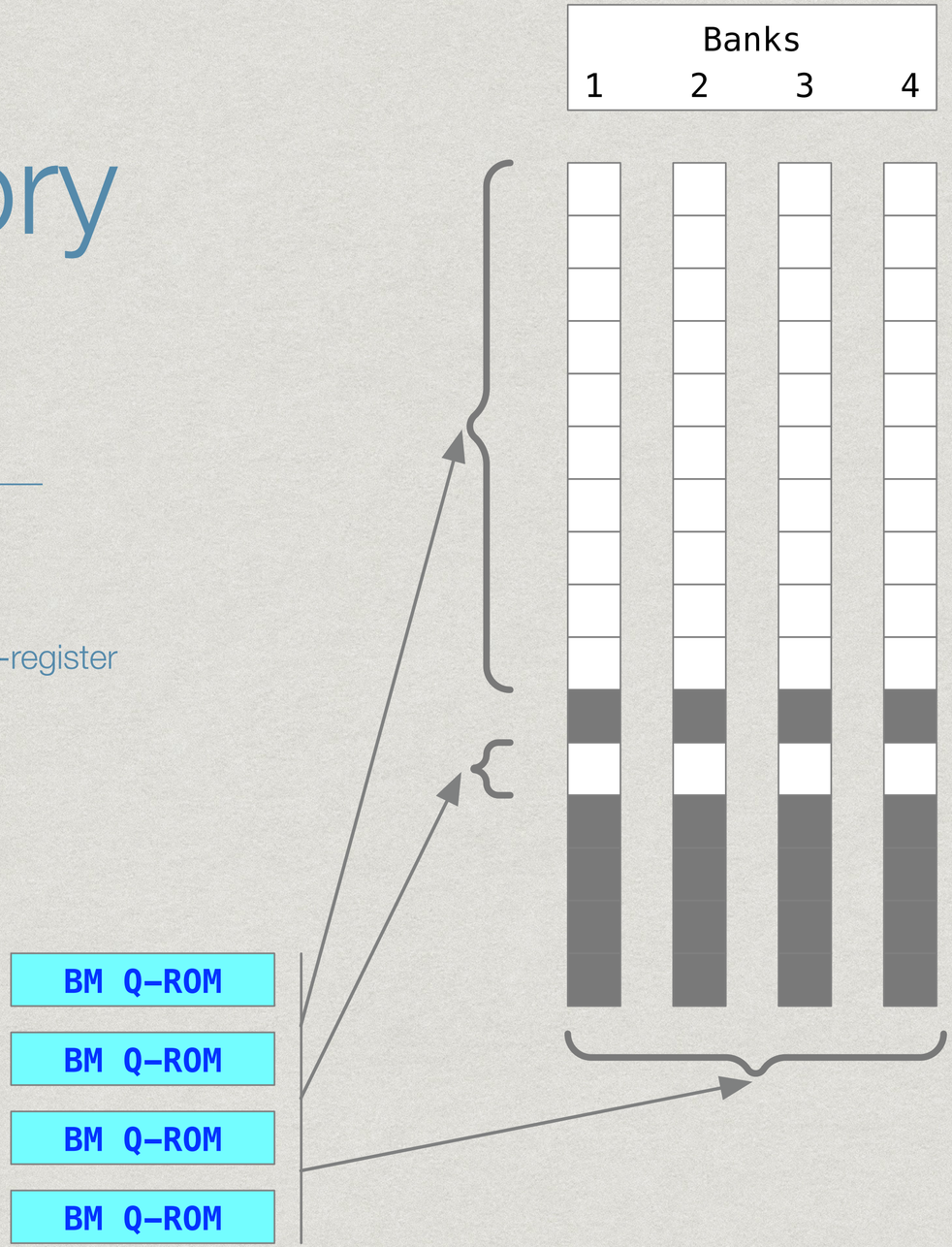
4	Special	0x4
3	CX X-Functions	0x3
2	41C/CV or 41CX Operating System	0x2
1		0x1
0		0x0

HP-41 MAXX Banked Memory

Function	Description
BMINI	Banked Memory Initialize
BMCLR	Banked Memory Clear
BMABX	Banked Memory Set Address/Bank by X-register
BMDIS	Banked Memory Read Disable
BMEN	Banked Memory Read Enable
BMWE	Banked Memory Write Enable
BMWP	Banked Memory Write Protect



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3	CX X-Functions	0x3
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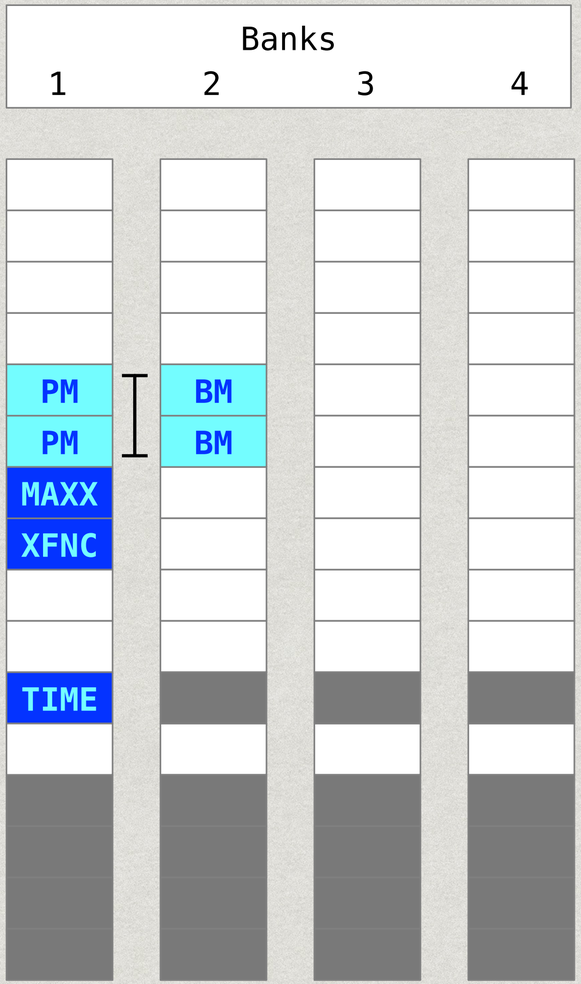
0		0x0

HP-41 MAXX Port & Banked Memory Config. Samples



ROM/QROM Pages & Ports	
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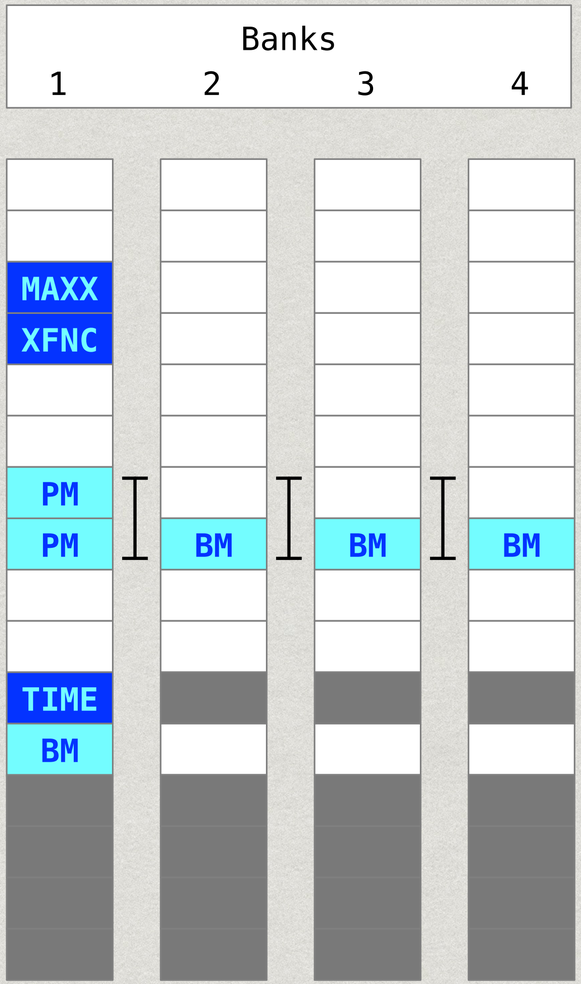
14	
13	Port 3
12	
11	Port 2
10	
9	Port 1
8	
7	HP-IL
6	Printer

4	Special



ROM/QROM Pages & Ports	
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9	Port 1
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7	HP-IL
6	Printer

4	Special

HP-41 MAXX
Misc. Functions

Function	MAXX Status Functions
MXST?	MAXX Hardware Status?
PMST?	Port Memory Status?
BMST?	Banked Memory Status?

Function	Instruction Memory Functions
AH>XD	Hex Address/Data to Decimal Address/Data
AHPEEK	Instruction Memory Read using Hex Address/Data
AHPOKE	Instruction Memory Write using Hex Address/Data
XD>AH	Decimal Address/Data to Hex Address/Data
XDPEEK	Instruction Memory Read using Decimal Address/Data
XDPOKE	Instruction Memory Write using Decimal Address/Data

Function	Code Copy Functions
CPYBNK	CopyBank

Systemyde

QUESTIONS ?

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How Much and When ?

- The expected selling price is:
  - $115.00 USD + shipping → with a donor module from the customer
  - TBD USD + shipping → without a donor module
- The expected production date is:
  - A first batch is planned for the end of 2022
  - Future batches will depend of parts availability
- Website → https://www.systemyde.com/hp41/

THANK YOU!

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