

# 41CL Memory Reference

06/09/17

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0x0F1	KC135_1U		31	KC135 Weight & Balance ROM, pg 2	0xE6E1F56A	09/13/11
0x0F2	KC135_2		16	KC135 Weight & Balance ROM, pg 3	0xC19C79A9	09/13/11
0x0F3	ALL_00				Blank, loaded as KC135 W&B ROM, pg 4	0xD666D0E4
0x0F4	PROFIL	PRFS	27	Profiset ROM, pg 1	0x0F3423F1	08/02/11
0x0F5	PROFIU		31	Profiset ROM, pg 2	0x1D013B09	08/02/11
0x0F6	SMATH2L	SND2	2	Sandmath II ROM, pg 1	0xB35356D4	07/13/12
0x0F7	SMATH2U		3	Sandmath II ROM, pg 2	0xDB82EFF5	07/13/12
0x0F8	MAHJONG1	MAHJ	10	Mahjong ROM, pg 1	0xE176B636	06/02/16
0x0F9	MAHJONG2			Mahjong ROM, pg 2	0x2C60830F	06/02/16
0x0FA	IERF1	IERR	1	IERF ROM, pg 1	0x54E81895	04/22/13
0x0FB	IERF2			IERF ROM, pg 2	0xD3941CC8	04/22/13
0x0FC	ACTION1	AGAM	13	Action Games ROM, pg 1	0x436ACA57	06/06/16
0x0FD	ACTION2			Action Games ROM, pg 2	0x3EDC15A8	06/06/16
0x0FE	L119L	L119	21	AFDC-L119 ROM, pg 1	0xE19AFE10	07/31/11
0x0FF	L119U		31	AFDC-L119 ROM, pg 2	0x7BD2A484	07/31/11
0x100	ADVMTRX1	MTRA	22	Advanced Matrix ROM, pg 1, bnk 1	0x68B79323	02/16/12
0x101	ADVMTRX1		24	Advanced Matrix ROM, pg 1, bnk 2	0x68B79323	02/16/12
0x102	CCDADV	CCDA	10	CCD Advanced ROM	0x706C0B22	02/17/12
0x103	GEOMETRY	GMTY	16	Geometry 11 ROM	0x1C7F4143	02/16/12

0x104	ADVMTRX2	<b>MTRA</b>	<b>22</b>	Advanced Matrix ROM, pg 2, bnk 1	0xF36D67ED	02/16/12
0x105	ADVMTRX3		<b>24</b>	Advanced Matrix ROM, pg 2, bnk 2	0x379659C1	02/16/12
0x106	NUMTHRY	<b>NTHY</b>	<b>16</b>	Number Theory ROM	0x1A82B478	02/17/12
0x107	DIGITPAC	<b>DIGT</b>	<b>24</b>	DigitPAC ROM	0xE8AD50A6	02/16/12
0x108	ILDEV2L	<b>DEV2</b>	<b>22</b>	IL Development II ROM, pg 1	0x1F8D9268	02/17/12
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0x10B	MONOPLY2			MONOPOLY ROM, pg 2	0xB3FBC23A	02/16/12
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0x10D	RAMPAGE	<b>RMPG</b>	<b>15</b>	RAMpage ROM	0x74520970	02/16/12
0x10E	SUDOKU	<b>SUD1</b>	<b>16</b>	SUDOKU ROM	0x2D95C87A	02/17/12
0x10F	VECTORS	<b>VECT</b>	<b>14</b>	Vector Analysis ROM	0x92859384	02/16/12
0x110	HDISASM	<b>HDIS</b>	<b>9</b>	HEPAX Disassembler	0x76DAFD70	04/01/14
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0x114	CLUTLSB1	<b>PWRL</b>	<b>12</b>	Power-CL Utilities, bnk 1	0x719402FF	11/22/14
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0x119	DIFEQ2			Differential Equations ROM, pg 2	0xA0E2C68B	05/30/12
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0x11B	INTEG2			Integrator ROM, pg 2	0x53AEDC2E	05/30/12
0x11C	SIROM	<b>SIHP</b>	<b>24</b>	SI ROM	0x14F0CD12	02/10/17
0x11D	PRTSRVC	<b>PSRV</b>	<b>N/A</b>	Printer Service ROM	0x3C5DEAF9	11/25/12
0x11E	441ZL	<b>441Z</b>	<b>1</b>	Library-4 HP41Z ROM, pg 1	0x8243464F	11/29/13
0x11F	441ZU		<b>4</b>	Library-4 HP41Z ROM, pg 2	0x326EE777	11/29/13
0x120	LIBRARY4	<b>4LIB</b>	<b>N/A</b>	Library-4	0xBF465233	05/16/17
0x121	RAMPGX4	<b>4RAM</b>	<b>17</b>	Library-4 RAMpage X ROM	0xA181AD52	09/12/16
0x122	TBOX4L4	<b>4TBX</b>	<b>13</b>	Library-4 Toolbox ROM	0x9F0989EC	11/29/13
0x123	ALPHA44	<b>4ALP</b>	<b>6</b>	Library-4 Alpha ROM	0x09E5FFC1	01/02/17
0x124	HP67_FUN	<b>H67G</b>	<b>23</b>	HP-67 Games ROM	0x830772EB	12/14/16
0x125	OUTERPLN	<b>OPLN</b>	<b>21</b>	Outer Planets ROM	0xF5D8BB73	05/17/16
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0x12C	XMASSTG	<b>MASS</b>	<b>16</b>	Extended Mass Storage ROM	0x35C45268	12/12/12
0x12D	41ZDIAG	<b>4DIG</b>	<b>8</b>	Library-4 41Z Diagnostic ROM	0x75620288	12/14/12
0x12E	PPCSTATS	<b>PPC9</b>	<b>9</b>	PPC Statistics ROM	0x58799CB2	11/10/16
0x12F	CHEMENG	<b>CENG</b>	<b>12</b>	Chemical Engineering Solutions	0x215AC3F6	01/20/13

0x130	SNEAP1	NEA1	21	SNEAP ROM, pg 1	0xBF50A7B3	10/07/12
0x131	SNEAP2		31	SNEAP ROM, pg 2	0x34536449	10/07/12
0x132	SNEAP3	NEA3	11	SNEAP ROM, pg 3	0xC66ADE2A	10/07/12
0x133	SNEAP4		10	SNEAP ROM, pg 4	0x12D67EA5	10/07/12
0x134	SNEAP5	NEA5	13	SNEAP ROM, pg 5	0x49C8C957	10/07/12
0x135	SNEAP6		14	SNEAP ROM, pg 6	0x63C507B3	10/07/12
0x136	KERMI2K	KRMK	26	Kermit 2000 ROM	0xA6D201B6	10/31/16
0x137	FLUIDDYN	FDYN	17	Fluid Dynamics Solutions	0xC5A565D3	03/03/13
0x138	SWPGAME1	GSWP	9	Swap Games ROM, pg 1	0x6C6161CB	06/03/16
0x139	SWPGAME2			Swap Games ROM, pg 2	0xDAAF84D7	06/03/16
0x13A	HVAC	HVAC	16	HVAC Solutions	0xC911BCF8	02/13/13
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0x13C	SAMLUNG1	GRMK	10	Selections from Lung book, pg 1	0x9BB5E471	06/02/16
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0x144	HEPX4H_1	HEP2	7	HEPAX 4H ROM, bnk 1	0x16ABD09C	10/24/16
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0x146	HEPX4H_3			HEPAX 4H ROM, bnk 3	0x983EFF48	02/20/16
0x147	HEPX4H_4			HEPAX 4H ROM, bnk 4	0x216F49EC	05/08/14
0x148	BASIC1	BASI	8	BASIC ROM, pg 1	0x443C6AF4	06/04/16
0x149	BASIC2		11	BASIC ROM, pg 2	0x0CB7ABCC	06/04/16
0x14A	CMT-300L	CMT3	9	CMT-300 Multimeter ROM, pg 1	0x62DCE73E	05/08/13
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0x14F	MLEPR_1H	EPRH	4	MLEPR -1H ROM	0x22EB5C08	05/27/13
0x150	BUDER2L	BUD2	15	Buderus-2 Module, pg 1	0x5F36C487	05/01/13
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0x153	MWKLN3	MWK3	10	MWK-3 Module	0x8BE45A73	05/25/13
0x154	MWKLN4L	MWK4	21	MWK-4 Module, pg 1	0x8D2CDC5A	05/01/13
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0x156	OVTROP2L	OTRP	5	Oventrop Ventil Module, pg 1	0x2FDA2E51	05/01/13
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0x158	NEXT_2C	NEXT	6	NEXT ROM	0x9787FBD4	05/01/13
0x159	MOUNT1C	MCMP	15	Mountain Computer 1C	0x8D1D4459	05/01/13



0x15A	CMT_1	<b>CMT1</b>	<b>31</b>	CMT-100 Eprom Test ROM, pg 1	0x40C2CF42	05/25/13
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0x15E	ICEBOX1H	<b>IBOX</b>	<b>4</b>	ICEbox -1H ROM	0x8A1BD27C	05/25/13
0x15F	MMEPROM	<b>EPRM</b>	<b>16</b>	MMEPROM ROM	0xA9D63976	05/27/13
0x160	C141BL	<b>141B</b>	<b>22</b>	C141B FSC ROM, pg 1	0xDE1B6C26	06/19/16
0x161	C141BU		<b>31</b>	C141B FSC ROM, pg 2	0xB2D15B96	06/19/16
0x162	ADVTGMTH	<b>ADVG</b>	<b>12</b>	Advantage Math ROM	0xE3932EA8	06/28/16
0x163	NONLINR	<b>NONL</b>	<b>16</b>	Non-linear Systems Module	0xE0F07F5E	08/02/16
0x164	4WINS	<b>4WIN</b>	<b>16</b>	4WINS Game ROM	0x17CB9809	09/05/16
0x165	AP550-2	<b>TGT2</b>	<b>10</b>	AP550 A2 Targeting ROM	0x28A0B775	03/26/17
0x166	ALL_FF	<b>YFSD</b>	<b>17</b>	41CL SD Card Functions	0x53D36BD2	
0x167	YFNF-1E	<b>YFNF</b>	<b>16</b>	41CL Memory Functions -1E	0xD417BF8D	08/05/16
0x168	OSXB1	<b>OSX3</b>	<b>5</b>	Lib-4 OS/X Bank-Switched ROM, bnk 1	0xE382DBE5	03/23/17
0x169	OSXB2			Lib-4 OS/X Bank-Switched ROM, bnk 2	0x242C99E4	08/14/16
0x16A	OSXB3			Lib-4 OS/X Bank-Switched ROM, bnk 3	0xAA6E8246	03/24/17
0x16B	OSXB4			Lib-4 OS/X Bank-Switched ROM, bnk 4	0xEF35296D	02/07/15
0x16C	WWRAMBOX	<b>WRAM</b>	<b>31</b>	W&W Rambox64 ROM	0xDF80DEF1	07/03/13
0x16D	OBCSYS	<b>OBCZ</b>	<b>31</b>	OBCSYS ROM	0x125CDF67	08/22/13
0x16E	AECPROG	<b>PROG</b>	<b>18</b>	Program Generator ROM	0x1C33B87A	08/24/13
0x16F	AECSLVR	<b>GSLV</b>	<b>18</b>	Geometric Solver ROM	0x8BDB0A81	08/24/13
0x170	BBS1	<b>BBSC</b>	<b>11</b>	BBS ROM, pg 1	0x506EB229	08/21/13
0x171	BBS2		<b>12</b>	BBS ROM, pg 2	0xCB4ED3ED	08/21/13
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0x175	DST12_1U		<b>9</b>	CalTrans Survey ROM, pg 2	0xFF209E30	01/23/14
0x176	DST12_2L		<b>10</b>	CalTrans Survey ROM, pg 3	0xAA809FAD	01/23/14
0x177	ALL_00				Blank, loaded as CalTrans Survey ROM, pg 4	0xD666D0E4
0x178	MATPOL11	<b>4MTI</b>	<b>22</b>	Lib-4 Matrix/Polynomial ROM, pg 1, bnk 1	0xD0A6FF32	01/01/15
0x179	MATPOL12			Lib-4 Matrix/Polynomial ROM, pg 1, bnk 2	0xB0549E94	01/01/15
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0x17C	MATPOL21	<b>4MTI</b>	<b>24</b>	Lib-4 Matrix/Polynomial ROM, pg 2, bnk 1	0xB83FE386	01/01/15
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0x181	PWREXT2			PowerCL Extreme, bnk 2	0x7E9DAE07	08/27/16
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0x186	NUTIP-1A	<b>ITCP</b>	<b>4</b>	NutIP TCP/IP ROM 1A	0x993752D4	05/23/14

0x187	CARDR-1G	RCRD	30	HP-41 Card Reader ROM	0xC1604FD1	06/08/16
0x188	FORCAST1	FCST	10	Forecast ROM	0x8FCB260B	06/28/14
0x189	FORCAST2	FCS2	10	Forecast 2 ROM	0xE359A8D9	06/28/14
0x18A	CO-OPL	COOQ	31	CO-OP ROM, pg 1	0xDEE4DF51	06/28/14
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0x193	ETSII6A	ETS9	16	ETSII6A ROM	0xFB2C3FED	12/15/16
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0x195	CIVU1	CIVU	20	Civil Engineering Special Collection, pg 1	0xD82A040B	08/17/14
0x196	CIVU2			Civil Engineering Special Collection, pg 2	0x75F238A0	08/17/14
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0x19D	BJ1B	BLJK	7	Blackjack -1B	0x98AB118B	01/17/15
0x19E	MAX2E	BJMX	6	Blackjack MAX -2E	0x8BB1375E	01/17/15
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0x1A0	SMAT41	SM44	3	Lib-4 Sandmath 4x4 ROM, pg 1, bnk 1	0xFFEA1469	03/13/17
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0x1B5	PK_FLAG	PKP3	3	Poul Kaarup's Flags and Stack ROM	0x4E280C57	04/12/15
0x1B6	PK_PROG	PKP4	5	Poul Kaarup's Program Utilities ROM	0x744ED659	04/12/15
0x1B7	PK_TIME	PKP5	18	Poul Kaarup's Timer and Utilities ROM	0xB74C2C71	04/12/15
0x1B8	WARPB1	WARP	21	Warp-core ROM, bnk 1	0xB236C2B7	05/21/17
0x1B9	WARPB2			Warp-core ROM, bnk 2	0x8ED85B52	05/22/17
0x1BA	SWAP21	2SWP	10	Misc routines from 412 Swap Disks, pg 1	0x05843F5B	06/03/16
0x1BB	SWAP22			Misc routines from 412 Swap Disks, pg 2	0xC35B0763	06/03/16
0x1BC	HP-16C_1	16CS	16	HP-16C Emulator ROM -1A, bnk 1	0xC4C66EF6	09/06/15
0x1BD	HP-16C_2			HP-16C Emulator ROM -1A, bnk 2	0x2E986FD5	09/06/15
0x1BE	HP-16C_3			HP-16C Emulator ROM -1A, bnk 3	0xE576C6D8	09/06/15
0x1BF	HP-16C_4			HP-16C Emulator ROM -1A, bnk 4	0xED3DCB2E	09/06/15
0x1C0	HC_1	HCPL	10	Hyper-Complex Math ROM, pg 1	0xA849C145	06/01/15
0x1C1	HC_2		20	Hyper-Complex Math ROM, pg 2	0xB4C25E1C	06/01/15
0x1C2	HC_3		21	Hyper-Complex Math ROM, pg 3	0x0572EB82	06/01/15
0x1C3	ALL_00			loaded as Hyper-Complex Math ROM, pg 4	0xD666D0E4	06/01/15
0x1C4	PSYCHRO	STEQ	12	Steam Properties ROM	0x5C74CFF9	01/08/17
0x1C5	POKER	PPOK	10	Poker ROM	0xE0A23C1B	09/15/15
0x1C6	GRAVTIM1	GRVI	16	Gravity & Time ROM, pg 1	0x286F1976	10/22/15
0x1C7	GRAVTIM2			Gravity & Time ROM, pg 2	0xAF5B06D2	10/22/15
0x1C8	TS4031	TDSM	4	TDS Surveying ROM, pg 1	0xBF22F456	06/01/15
0x1C9	TS4032		10	TDS Surveying ROM, pg 2	0x9E8588CF	06/01/15
0x1CA	TS4033		31	TDS Surveying ROM, pg 3	0x6A1C50CF	06/01/15
0x1CB	TS4034		30	TDS Surveying ROM, pg 4	0x5F4775CF	06/01/15
0x1CC	TI2023	TDSI	5	TDS Instrument ROM, pg 1	0xBD37F6EA	06/01/15
0x1CD	TI2024		12	TDS Instrument ROM, pg 2	0x98D9A27A	06/01/15
0x1CE	TP2243	TDSP	8	TDS Plotter ROM, pg 1	0x9801DAC7	06/01/15
0x1CF	TP2244		9	TDS Plotter ROM, pg 2	0xF944C90F	06/01/15
0x1D0	TIDES	TIDW	10	Tides ROM	0xB2C7D535	10/04/15
0x1D1	PORTSL	PRTW	11	US Ports ROM, pg 1	0x737C5C10	10/04/15
0x1D2	PORTSU			US Ports ROM, pg 2	0x26852531	10/04/15
0x1D3	HPCALEND	CLND	12	HP Calendar Solutions	0x933814CA	10/04/15
0x1D4	RUBIKS	RUBK	8	Rubik's Cube ROM	0x264D420D	10/19/15
0x1D5	TINKER1	TAFB	21	Tinker AFB ROM, pg 1	0xD06E207D	10/19/15
0x1D6	TINKER2		31	Tinker AFB ROM, pg 2	0xE43B37DC	10/19/15
0x1D7	JMB_CAL	JMBC	17	JMB Calendar ROM	0x3B68614D	10/25/15
0x1D8	USERCAL	UCLN	18	User Calendar ROM	0xE0DAB2CA	10/25/15
0x1D9	FILTERS1	EEFD	17	EE Filter Design ROM, pg 1	0x1E8384EC	11/15/15
0x1DA	FILTERS2		18	EE Filter Design ROM, pg 2	0xCAD49825	12/15/16
0x1DB	CRYPTO41	CRTO	10	Cryptography Module	0x28BC8649	11/20/15
0x1DC	XFRAME	XBFR	30	Direct Stiffness Method, pg 1	0x02AE22A3	11/15/15
0x1DD	XBEAMS			Direct Stiffness Method, pg 2	0xF95A4251	11/15/15
0x1DE	TRUSS	XTRS	30	Direct Stiffness Method: Trusses, pg 1	0x88058D2D	11/15/15
0x1DF	XTRUSS			Direct Stiffness Method: Trusses, pg 2	0xFB3DAAD6	11/15/15

0x1E0	SWAPMTH	3SWP	12	Swapdisk Math, pg 1	0xF8896B0C	02/10/17
0x1E1	SWAPPOL		13	Swapdisk Math, pg 2	0xF3907193	02/10/17
0x1E2	XMSTAT	XTAT	6	XM Statistics Module	0x315C68DD	12/30/15
0x1E3	TRANSNEP	EPTN	23	Trans-Neptunian Planets, 2016-2025	0xB79E2C7E	11/30/15
0x1E4	COUNTRY	CITY	18	Country/Capital ROM	0x5DF3F873	12/18/15
0x1E5	SERIES	SERI	18	Sums & Series ROM	0x7D90435F	03/26/17
0x1E6	PLANETS	PLAN	9	Planets ROM	0x17FFE68E	05/10/16
0x1E7	PLUTOIDS	PLTO	10	Plutoids ROM	0xBC96B6FA	05/10/16
0x1E8	SPANISH	WORD	31	English/Spanish Dictionary ROM, pg 1	0x14567DB7	01/04/16
0x1E9	ENGLISH			English/Spanish Dictionary ROM, pg 2	0xBBFC04E6	01/04/16
0x1EA	GJM_2B_1	GJMR	31	Greg J McClure's ROM, pg 1	0x15DE7F71	08/19/16
0x1EB	GJM_2B_2			Greg J McClure's ROM, pg 2	0xC6FFD975	08/19/16
0x1EC	ELLIPTIC	ELPT	17	Elliptic ROM	0x1DD1C496	07/26/16
0x1ED	PERIOD1	HTAB	13	(HEPAX RAM only) Periodic Table, pg 1	0xCCA0B09D	02/23/16
0x1EE	PERIOD2		14	(HEPAX RAM only) Periodic Table, pg 2	0x23A57B1A	02/23/16
0x1EF	PERIOD3		16	(HEPAX RAM only) Periodic Table, pg 3	0x395E9D7C	02/23/16
0x1F0	41ZL1	Z4DL	1	41Z Deluxe, pg 1, bnk 1	0xD99F3694	03/15/17
0x1F1	41ZL2			41Z Deluxe, pg 1, bnk 2	0x79CA2B0A	03/15/17
0x1F2	ITGDIFF	FRID	18	Fractional Integro-Differentiation ROM	0x60FB8998	03/26/17
0x1F3	RECURSE	RCSN	9	Recursion ROM	0xE3D80EBC	03/16/17
0x1F4	41ZU1	Z4DL	4	41Z Deluxe, pg 2, bnk 1	0xCE112F82	02/26/17
0x1F5	41ZU2			41Z Deluxe, pg 2, bnk 2	0x7E2A062E	03/07/17
0x1F6	GAMESB1	GSB2	16	HP-41 Games Solution Book 1/2, pg 1	0x843AD40C	06/03/16
0x1F7	GAMESB2			HP-41 Games Solution Book 1/2, pg 2	0x53A51C5C	06/03/16
0x1F8	E-6A_1	E-6A	21	E-6A W&B, pg 1	0x30B8DDA3	10/31/16
0x1F9	E-6A_2		31	E-6A W&B, pg 2	0xCAEE69CA	10/31/16
0x1FA	E-6A_3		10	E-6A W&B, pg 3	0xD09ED147	10/31/16
0x1FB	E-6A_4		9	E-6A W&B, pg 4	0xB3066F07	10/31/16
0x1FC	AP550-3L	TGT3	21	AP550 A3 Targeting ROM, pg 1	0x30BD2647	03/26/17
0x1FD	AP550-3U		31	AP550 A3 Targeting ROM, pg 2	0x6079942F	03/26/17
0x1FE	ALL_FF			empty	0x53D36BD2	
0x1FF	ALL_FF			empty	0x53D36BD2	
0x800				41C Registers 0-3FF		
0x801				Registers 400-FFF (not utilized by the OS)		
0x802						
0x803						
0x804				41CL MMU registers		
0x805		YBFR		Memory Buffer		
0x806		CFDB		Memory Buffer or CFLDB location		
0x807						
0x808						
0x809						
0x80A						
0x80B						
0x80C						

0x80D						
0x80E						
0x80F						
0x810				Page 0 of Sector Buffer		
0x811				Page 1 of Sector Buffer		
0x812				Page 2 of Sector Buffer		
0x813				Page 3 of Sector Buffer		
0x814				Page 4 of Sector Buffer		
0x815				Page 5 of Sector Buffer		
0x816				Page 6 of Sector Buffer		
0x817				Page 7 of Sector Buffer		
0x818						
0x819						
0x81A						
0x81B						
0x81C						
0x81D						
0x81E						
0x81F						
0x820						
0x821						
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**NOTES:**

1. Flash memory starts at page 0x000, and RAM memory starts at page 0x800.

2. A blank page in Flash memory is different from an empty page in Flash memory. A blank page contains 0x0000 in every location, and can be safely plugged into a Port. An empty (erased or unprogrammed) page contains 0xFFFF in every location, which will lock up the 41CL when plugged into a Port. A blank page has a YCRC value of 0xD666D0E4, while an empty page has a YCRC value of 0x53D36BD2.

3. Flash memory is always erased by sectors. Normally a sector consists of eight pages, and sector boundaries are highlighted in the table. Either the the top sector or the bottom sector is unique, and is erased by subsector. Refer to the “41CL Flash Updates” document for the details.

# RAM Memory Details

Physical Address	Contents	Used for
0x800000 - 0x800003	Register 000	T register
0x800004 - 0x800007	Register 001	Z register
0x800008 - 0x80000B	Register 002	Y register
0x80000C - 0x80000F	Register 003	X register
0x800010 - 0x800013	Register 004	L register
0x800014 - 0x800017	Register 005	ALPHA register 1-7
0x800018 - 0x80001B	Register 006	ALPHA register 8-14
0x80001C - 0x80001F	Register 007	ALPHA register 15-21
0x800020 - 0x800023	Register 008	ALPHA register 22-28
0x800024 - 0x800027	Register 009	temp ALPHA scratch
0x800028 - 0x80002B	Register 00A	OS functions
0x80002C - 0x80002F	Register 00B	
0x800030 - 0x800033	Register 00C	
0x800034 - 0x800037	Register 00D	
0x800038 - 0x80003B	Register 00E	FLAG register
0x80003C - 0x80003F	Register 00F	OS functions
0x800040 - 0x8000FF	Registers 10 - 3F	not visible to OS
0x800100 - 0x800103	Register 040	X-Memory
0x800104 - 0x800107	Register 041	
.	.	
.	.	
0x8002F8 - 0x8002FB	Register 0BE	
0x8002FC - 0x8002FF	Register 0BF	
0x800300 - 0x800303	Register 0C0	
0x800304 - 0x800307	Register 0C1	Key Assign Buffer, Alarm Buffer, I/O Buffers, Program memory Data
.	.	
.	.	
0x8007F8 - 0x8007FB	Register 1FE	
0x8007FC - 0x8007FF	Register 1FF	
0x800800 - 0x800803	Register 200	not visible to OS
0x800804 - 0x800807	Register 201	X-Memory
0x800808 - 0x80080B	Register 202	
.	.	
.	.	
0x800BB8 - 0x800BBB	Register 2EE	
0x800BBC - 0x800BBF	Register 2EF	
0x800BC0 - 0x800C03	Registers 2F0 - 300	not visible to OS



0x800C04 - 0x800C07	Register 301		X-Memory
0x800C08 - 0x800C0B	Register 302		
.	.		
0x800FB8 - 0x800FBB	Register 3EE		
0x800FBC - 0x800FBF	Register 3EF		
0x800FC0 - 0x800FFF	Registers 3F0 - 3FF		not visible to OS
0x801000 - 0x801FFF	Registers 400 - 7FF		Expanded Memory 1
0x802000 - 0x802FFF	Registers 800 - BFF		Expanded Memory 2
0x803000 - 0x803FFF	Registers C00 - FFF		Expanded Memory 3
0x804000	41C Register Address		REGADD
0x804001 - 0x80400B	reserved		
0x80400C	Page 0 MMU registers (only one bank)	set 0	Page 0 MMU data
0x80400D		set 1	
0x80400E		set 2	
0x80400F		set 3	
0x804010 - 0x804017	41CL Extra/Extreme functions internal use		
0x804018	Turbo Mode storage location		Light Sleep
0x804019	41CL Extra/Extreme functions internal use		
0x80401A	CPU ST[14:8] storage location		Light Sleep
0x80401B	reserved		
0x80401C	Page 1 MMU register (only one bank)	set 0	Page 1 MMU data
0x80401D		set 1	
0x80401E		set 2	
0x80401F		set 3	
0x804020 - 0x80402B	41CL Memory Functions internal use		
0x80402C	Page 2 MMU register (only one bank)	set 0	Page 2 MMU data
0x80402D		set 1	
0x80402E		set 2	
0x80402F		set 3	
0x804030	Page 4 MMU register dynamic storage		
0x804031 - 0x80403B	41CL Update Functions internal use		
0x80403C	Page 3 MMU register (only one bank)	set 0	Page 3 MMU data
0x80403D		set 1	
0x80403E		set 2	
0x80403F		set 3	

0x804040	Page 4, Bank 1 MMU registers	set 0	Page 4 MMU data
0x804041		set 1	
0x804042		set 2	
0x804043		set 3	
0x804044	Page 4, Bank 3 MMU registers	set 0	
0x804046		set 1	
0x804046		set 2	
0x804047		set 3	
0x804048	Page 4, Bank 2 MMU registers	set 0	
0x804049		set 1	
0x80404A		set 2	
0x80404B		set 3	
0x80404C	Page 4, Bank 4 MMU registers	set 0	
0x80404D		set 1	
0x80404E		set 2	
0x80404F		set 3	
0x804050 - 0x804053	Page 5, Bank 1 MMU registers	sets 0-3	Page 5 MMU data
0x804054 - 0x804057	Page 5, Bank 3 MMU registers	sets 0-3	
0x804058 - 0x80405B	Page 5, Bank 2 MMU registers	sets 0-3	
0x80405C - 0x80405F	Page 5, Bank 4 MMU registers	sets 0-3	
0x804060 - 0x804063	Page 6, Bank 1 MMU registers	sets 0-3	Page 6 MMU data
0x804064 - 0x804067	Page 6, Bank 3 MMU registers	sets 0-3	
0x804068 - 0x80406B	Page 6, Bank 2 MMU registers	sets 0-3	
0x80406C - 0x80406F	Page 6, Bank 4 MMU registers	sets 0-3	
.	.		.
0x8040E0 - 0x8040E3	Page E, Bank 1 MMU registers	sets 0-3	Page E MMU data
0x8040E4 - 0x8040E7	Page E, Bank 3 MMU registers	sets 0-3	
0x8040E8 - 0x8040EB	Page E, Bank 2 MMU registers	sets 0-3	
0x8040EC - 0x8040EF	Page E, Bank 4 MMU registers	sets 0-3	
0x8040F0 - 0x8040F3	Page F, Bank 1 MMU registers	sets 0-3	Page F MMU data
0x8040F4 - 0x8040F7	Page F, Bank 3 MMU registers	sets 0-3	
0x8040F8 - 0x8040FB	Page F, Bank 2 MMU registers	sets 0-3	
0x8040FC - 0x8040FF	Page F, Bank 4 MMU registers	sets 0-3	
0x804100 - 0x804FFF	41CL functions internal use		
0x805000 - 0x805FFF	Memory Buffer (1 4Kx16 page)		
0x806000 - 0x806FFF	CFLDB location		
0x807000 - 0x80FFFF	User RAM (9 4Kx16 pages)		
0x810000 - 0x817FFF	Sector Buffer (8 4Kx16 pages)		
0x818000 - 0x87FFFF	User RAM (104 4Kx16 pages)		

**NOTES:**

1. Each seven-byte 41C register is stored in four successive memory locations:

bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
addr lsb																
00	Byte 1								Byte 0							
01	Byte 3								Byte 2							
10	Byte 5								Byte 4							
11	unused								Byte 6							

2. Each MMU entry is stored in a single memory location:

bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
	EN	LCK	MULTI	A23	A22	A21	A20	A19	A18	A17	A16	A15	A14	A13	A12	

Bit 15 is the Enable (EN) bit. If this bit is zero, the MMU entry is ignored and the corresponding page and bank will be fetched from a Port.

Bit 14 is the Lock (LCK) bit, used only with the 41CL Extreme Functions. If this bit is set to one the entry cannot be changed, except with either the **UNLOCK** function or the **MMUCLR** function.

Bits 13 and 12 are the Multi-page Image (MULTI) bits, used only with the 41CL Extreme Functions. These bits are managed automatically by the **PLUG** and **PPLUG** functions, with the following meanings:

13	12	MULTI
0	0	Not part of a multi-page image
0	1	First page of a multi-page image
1	1	Middle page of a multi-page image
1	0	Last page of a multi-page image

Bits 11-0 hold the twelve address bits to be substituted for the Page address (bits 15-12) portion of the logical address, to create the physical address.

3. MMU register sets 1-3 are used only by the 41CL Extreme Functions.

