LCD Display

The PBMCUSLK includes an 8-char x 2-line LCD module to support application development requiring character display output. The LCD display is manufactured by FEMA Electronics Corporation, part number CM0826.

NOTE
The factory installed LCD Display does not support status feedback. The developer should implement a delay routine to provide enough time for the commands to be received and processed by the LCD. Example code for using the LCD with many of the application modules is available at www.freescale.com/universityprograms

Below is a listing of *standard* control and character codes. For detailed information or extended features refer to the LCD manufacturer.

STANDARD LCD CONTROL CODES

Control Codes are used for LCD panel setup and control of character or cursor position. All control codes are written to LCD command address. The BUSY flag should be tested before any control updates to verify that any previous control command has been completed. The BUSY flag is bit position 7 of the Control register (data mask = $80). A read of the command address will return the BUSY flag status and the current display character location address.

COMMAND	**DATA**	**TIME DELAY**
Clear Display, Cursor to Home	$01	1.65ms
Cursor to Home	$02	1.65ms
Entry Mode:		
Cursor Decrement, Shift off	$04	40us
Cursor Decrement, Shift on	$05	40us
Cursor Increment, Shift off	$06	40us
Cursor Increment, Shift on	$07	40us
Display Control:		
Display, Cursor, and Cursor Blink off	$08	40us
Display on, Cursor and Cursor Blink off	$0C	40us
Display and Cursor on, Cursor Blink off	$0E	40us
Display, Cursor, and Cursor Blink on	$0F	40us
Cursor / Display Shift: (nondestructive move)		
Cursor shift left	$10	40us
Cusor shift right	$14	40us
Display shift left	$18	40us

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Display shift right	$1C	40us
Display Function (default 2x40 size)	$3C	40us
Character Generator Ram Address set	$40-7F	40us
Display Ram Address set (2 x 40 Display = $80-CF max)	$80-FF	40us

STANDARD LCD CHARACTER CODES

The display Character Generator Ram is displayed at $00 - $1F. Refer to display panel data sheet for extended character set.

Data	Character	Data	Character	Data	Character
$20	Space	$40	Time Sym	$60	`
$21	!	$41	A	$61	a
$22	“	$42	B	$62	b
$23	#	$43	C	$63	c
$24	$	$44	D	$64	d
$25	%	$45	E	$65	e
$26	&	$46	F	$66	f
$27	‘	$47	G	$67	g
$28	(	$48	H	$68	h
$29	)	$49	I	$69	i
$2A	*	$4A	J	$6A	j
$2B	+	$4B	K	$6B	k
$2C	,	$4C	L	$6C	l
$2D	-	$4D	M	$6D	m
$2E	.	$4E	N	$6E	n
$2F	/	$4F	O	$6F	o
$30	0	$50	P	$70	p
$31	1	$51	Q	$71	q
$32	2	$52	R	$72	r

1 Revision History

Version	Date	Revised By	Description of Changes
0	07/2007	JOHNMC	Initial Release
1	08/2007	JOHNMC	Fix Document Name Error
2	11/2007	JOHNMC	Added Status Flags Note

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