

Figure 21. Locking operations flowchart and pseudocode

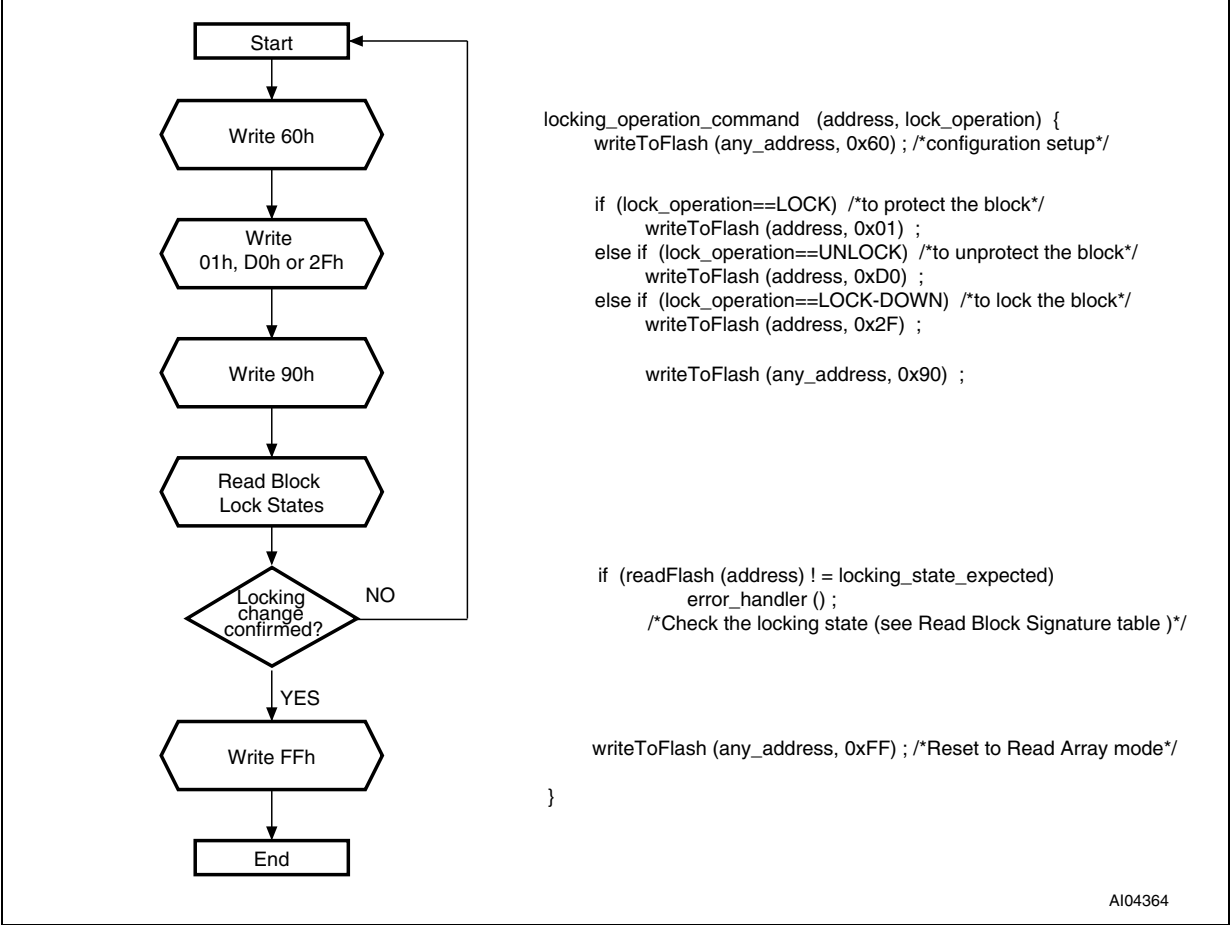
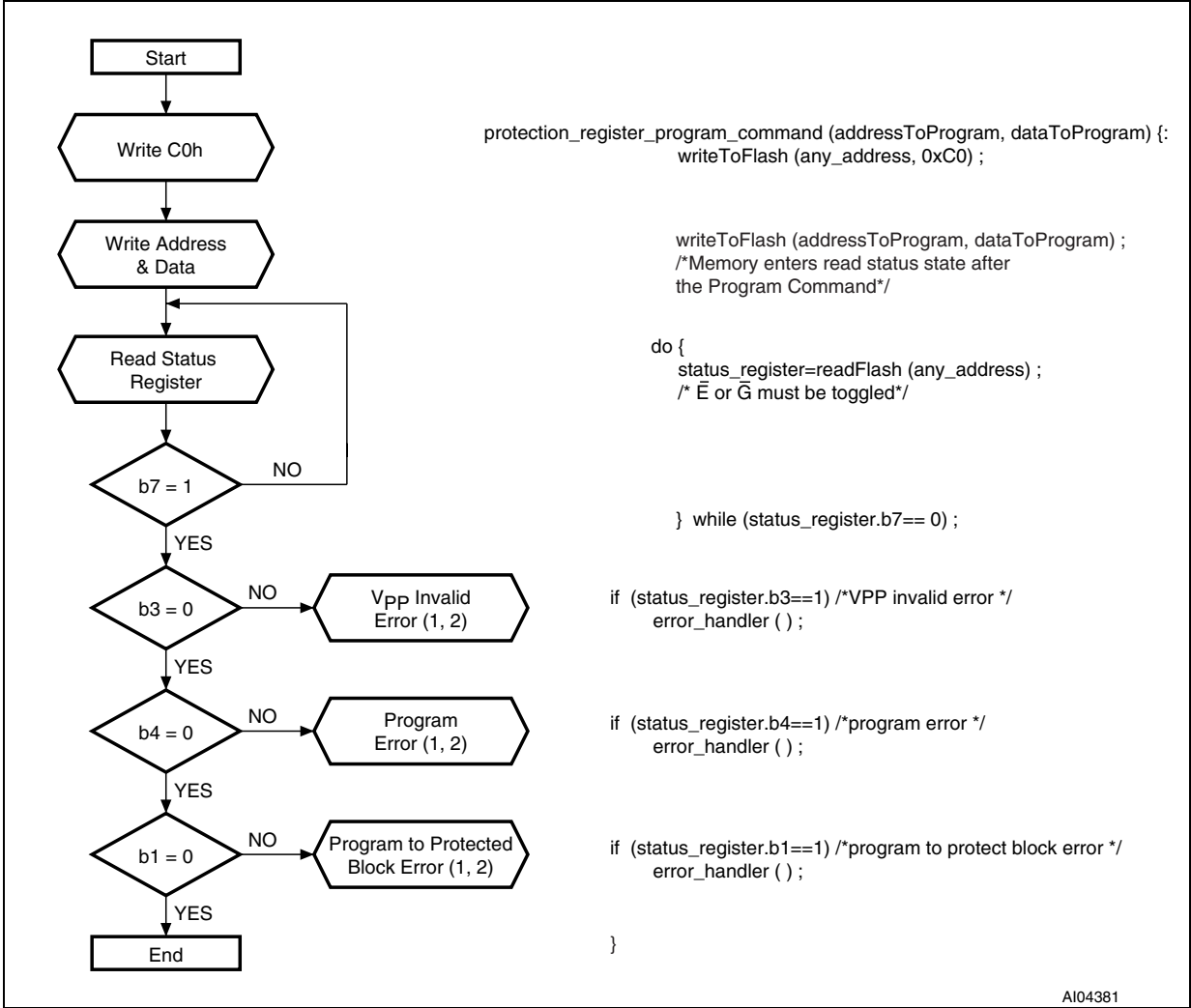


Figure 22. Protection Register Program flowchart and pseudocode



1. Status check of b1 (protected block), b3 (V_{PP} invalid) and b4 (program error) can be made after each program operation or after a sequence.
2. If an error is found, the Status Register must be cleared before further Program/Erase controller operations.

Appendix D Command interface and Program/Erase controller state

Table 31. Write state machine current/next⁽¹⁾

Current state	SR bit 7	Data when Read	Command input (and next state)							
			Read Array (FFh)	Program Setup (10/40h)	Erase Setup (20h)	Erase Confirm (D0h)	Prog/Ers Suspend (B0h)	Prog/Ers Resume (D0h)	Read Status (70h)	Clear Status (50h)
Read Array	‘1’	Array	Read Array	Prog.Setup	Ers. Setup	Read Array			Read Sts.	Read Array
Read Status	‘1’	Status	Read Array	Program Setup	Erase Setup	Read Array			Read Status	Read Array
Read Elect.Sg.	‘1’	Electronic signature	Read Array	Program Setup	Erase Setup	Read Array			Read Status	Read Array
Read CFI Query	‘1’	CFI	Read Array	Program Setup	Erase Setup	Read Array			Read Status	Read Array
Lock Setup	‘1’	Status	Lock Command Error			Lock (complete)	Lock Cmd Error	Lock (complete)	Lock Command Error	
Lock Cmd Error	‘1’	Status	Read Array	Program Setup	Erase Setup	Read Array			Read Status	Read Array
Lock (complete)	‘1’	Status	Read Array	Program Setup	Erase Setup	Read Array			Read Status	Read Array
Prot. Prog. Setup	‘1’	Status	Protection Register Program							
Prot. Prog. (continue)	‘0’	Status	Protection Register Program continue							
Prot. Prog. (complete)	‘1’	Status	Read Array	Program Setup	Erase Setup	Read Array			Read Status	Read Array
Prog. Setup	‘1’	Status	Program							
Program (continue)	‘0’	Status	Program (continue)				Prog. Sus Read Sts	Program (continue)		
Prog. Sus Status	‘1’	Status	Prog. Sus Read Array	Program Suspend to Read Array		Program (continue)	Prog. Sus Read Array	Program (continue)	Prog. Sus Read Sts	Prog. Sus Read Array
Prog. Sus Read Array	‘1’	Array	Prog. Sus Read Array	Program Suspend to Read Array		Program (continue)	Prog. Sus Read Array	Program (continue)	Prog. Sus Read Sts	Prog. Sus Read Array
Prog. Sus Read Elect.Sg.	‘1’	Electronic signature	Prog. Sus Read Array	Program Suspend to Read Array		Program (continue)	Prog. Sus Read Array	Program (continue)	Prog. Sus Read Sts	Prog. Sus Read Array

Table 31. Write state machine current/next⁽¹⁾ (continued)

Current state	SR bit 7	Data when Read	Command input (and next state)							
			Read Array (FFh)	Program Setup (10/40h)	Erase Setup (20h)	Erase Confirm (D0h)	Prog/Ers Suspend (B0h)	Prog/Ers Resume (D0h)	Read Status (70h)	Clear Status (50h)
Prog. Sus Read CFI	'1'	CFI	Prog. Sus Read Array	Program Suspend to Read Array		Program (continue)	Prog. Sus Read Array	Program (continue)	Prog. Sus Read Sts	Prog. Sus Read Array
Program (complete)	'1'	Status	Read Array	Program Setup	Erase Setup	Read Array			Read Status	Read Array
Erase Setup	'1'	Status	Erase Command Error			Erase (continue)	Erase CmdError	Erase (continue)	Erase Command Error	
Erase Cmd.Error	'1'	Status	Read Array	Program Setup	Erase Setup	Read Array			Read Status	Read Array
Erase (continue)	'0'	Status	Erase (continue)				Erase Sus Read Sts	Erase (continue)		
Erase Sus Read Sts	'1'	Status	Erase Sus Read Array	Program Setup	Erase Sus Read Array	Erase (continue)	Erase Sus Read Array	Erase (continue)	Erase Sus Read Sts	Erase Sus Read Array
Erase Sus Read Array	'1'	Array	Erase Sus Read Array	Program Setup	Erase Sus Read Array	Erase (continue)	Erase Sus Read Array	Erase (continue)	Erase Sus Read Sts	Erase Sus Read Array
Erase Sus Read Elect.Sg.	'1'	Electronic Signature	Erase Sus Read Array	Program Setup	Erase Sus Read Array	Erase (continue)	Erase Sus Read Array	Erase (continue)	Erase Sus Read Sts	Erase Sus Read Array
Erase Sus Read CFI	'1'	CFI	Erase Sus Read Array	Program Setup	Erase Sus Read Array	Erase (continue)	Erase Sus Read Array	Erase (continue)	Erase Sus Read Sts	Erase Sus Read Array
Erase (complete)	'1'	Status	Read Array	Program Setup	Erase Setup	Read Array			Read Status	Read Array

1. Cmd = Command, Elect.Sg. = Electronic Signature, Ers = Erase, Prog. = Program, Prot = Protection, Sus = Suspend.

Table 32. Write state machine current/next⁽¹⁾

Current state	Command input (and next state)						
	Read Elect.Sg. (90h)	Read CFI Query (98h)	Lock Setup (60h)	Prot. Prog. Setup (C0h)	Lock Confirm (01h)	Lock Down Confirm (2Fh)	Unlock Confirm (D0h)
Read Array	Read Elect.Sg.	Read CFI Query	Lock Setup	Prot. Prog. Setup	Read Array		
Read Status	Read Elect.Sg.	Read CFI Query	Lock Setup	Prot. Prog. Setup	Read Array		
Read Elect.Sg.	Read Elect.Sg.	Read CFI Query	Lock Setup	Prot. Prog. Setup	Read Array		
Read CFI Query	Read Elect.Sg.	Read CFI Query	Lock Setup	Prot. Prog. Setup	Read Array		
Lock Setup	Lock Command Error				Lock (complete)		
Lock Cmd Error	Read Elect.Sg.	Read CFI Query	Lock Setup	Prot. Prog. Setup	Read Array		
Lock (complete)	Read Elect.Sg.	Read CFI Query	Lock Setup	Prot. Prog. Setup	Read Array		
Prot. Prog. Setup	Protection Register Program						
Prot. Prog. (continue)	Protection Register Program (continue)						
Prot. Prog. (complete)	Read Elect.Sg.	Read CFI Query	Lock Setup	Prot. Prog. Setup	Read Array		
Prog. Setup	Program						
Program (continue)	Program (continue)						
Prog. Suspend Read Status	Prog. Suspend Read Elect.Sg.	Prog. Suspend Read CFI Query	Program Suspend Read Array				Program (continue)
Prog. Suspend Read Array	Prog. Suspend Read Elect.Sg.	Prog. Suspend Read CFI Query	Program Suspend Read Array				Program (continue)
Prog. Suspend Read Elect.Sg.	Prog. Suspend Read Elect.Sg.	Prog. Suspend Read CFI Query	Program Suspend Read Array				Program (continue)
Prog. Suspend Read CFI	Prog. Suspend Read Elect.Sg.	Prog. Suspend Read CFI Query	Program Suspend Read Array				Program (continue)
Program (complete)	Read Elect.Sg.	Read CFIQuery	Lock Setup	Prot. Prog. Setup	Read Array		

Table 32. Write state machine current/next⁽¹⁾ (continued)

Current state	Command input (and next state)						
	Read Elect.Sg. (90h)	Read CFI Query (98h)	Lock Setup (60h)	Prot. Prog. Setup (C0h)	Lock Confirm (01h)	Lock Down Confirm (2Fh)	Unlock Confirm (D0h)
Erase Setup	Erase Command Error						Erase (continue)
Erase Cmd.Error	Read Elect.Sg.	Read CFI Query	Lock Setup	Prot. Prog. Setup	Read Array		
Erase (continue)	Erase (continue)						
Erase Suspend Read Sttus	Erase Suspend Read Elect.Sg.	Erase Suspend Read CFI Query	Lock Setup	Erase Suspend Read Array			Erase (continue)
Erase Suspend Read Array	Erase Suspend Read Elect.Sg.	Erase Suspend Read CFI Query	Lock Setup	Erase Suspend Read Array			Erase (continue)
Erase Suspend Read Elect.Sg.	Erase Suspend Read Elect.Sg.	Erase Suspend Read CFI Query	Lock Setup	Erase Suspend Read Array			Erase (continue)
Erase Suspend Read CFI Query	Erase Suspend Read Elect.Sg.	Erase Suspend Read CFI Query	Lock Setup	Erase Suspend Read Array			Erase (continue)
Erase (complete)	Read Elect.Sg.	Read CFI Query	Lock Setup	Prot. Prog. Setup	Read Array		

1. Cmd = Command, Elect.Sg. = Electronic Signature, Prog. = Program, Prot = Protection.

11 Revision history

Table 33. Document revision history

Date	Version	Changes
29-Jan-2008	1	Initial release.
20-Mar-2008	2	Applied Numonyx branding.

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