

ClockMatrix

Programming the 24FC1025 EEPROM with the Total Phase EEPROM Board

Abstract

This document explains how to program the 24FC1025 EEPROM for use with Renesas 8A340xx devices. The procedure describes how to use the Total Phase Aardvark card, an EEPROM board, and a loose EEPROM. However, the same process can be used by connecting the Aardvark card directly to header interface wired to an EEPROM mounted on a PCB board.

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1. Hardware/Software Setup

- Hardware: https://www.totalphase.com/products/eeprom-devkit/
- EEPROM Device: <u>https://www.digikey.com/product-detail/en/microchip-technology/24FC1025-I-P</u>
- Software: https://www.totalphase.com/products/flash-center/

2. Total Phase EEPROM Board Setup

- Place EEPROM in PDIP8 Socket
- J4 place jumper on position 1-2
- · J3 populate jumper
- VDD Source: set jumper to 3.3V
- Wire J6 as follows:
 - Pin 1 = Open
 - Pin 2 = Open
 - Pin 3 = VDD
 - Pin 4 = GND
 - Pin 5 = SDA
 - Pin 6 = SCLK
 - Pin 7 = GND
 - Pin 8 = VDD



3. Software

1. Start up the Flash Center GUI.



2. Select device 24AA1025 and press "OK".





- 3. Press "Add Adapters".
- 4. Select the Adapter.
- 5. Press "Add".

Target Power (Pin 4, 6):	5 V 👻	000	Add Adapter	rs			
IO Power (Pin 22, 24): Level Shift:	Disabled	00	Select Progra	amming Adapters:			
Adapters			Port	Туре	FW	HW	Serial Number
Adaptoro			0	Aardvark I2C/SPI	3.51	3.00	TP2237-967188
		Tr	Tip: Use the Custom IPs	control or shift key to select mu	Itiple adapters.	Cancel	
Add Adapters Remove All	Al: 🗾 🖉 🌀		Clear	Save			
		~					

The transaction log should reflect the update: -

Index	Timestamp	Summary
0	2017-Jun-26 08:54:13.780	Loaded Microchip 24AA1025 128 Kilobyte EEPROM. Maximum bitrate 400 kHz
1	2017-Jun-26 08:54:13.780	Base I2C Slave Address changed to 0x50.
2	2017-Jun-26 08:56:35.420	Loaded Microchip 24AA1025 128 Kilobyte EEPROM. Maximum bitrate 400 kHz
3	2017-Jun-26 08:58:54.948	Connected to Aardvark I2C/SPI at index 1 TP2237-967188 (USB 1.1).
4	2017-Jun-26 08:58:54.974	Supported Features: I2C, SPI(Standard)

- 6. Set "Bit rate" = 400kHz.
- 7. Set "Target Power" = 3.3V.
- 8. Set "IO Power" = Disabled.
- 9. Set "Level Shift" = 3.3V.

Device Control	
Target:	Microchip Technology 24AA1025
Capacity:	128 Kilobytes
Bit rate:	→ ✓ X 400 kHz →
I2C Slave Address:	0x50
SPI I/O Mode:	Quad 👻
Promira Power Control	
Target Power (Pin 4, 6):	3.3 V 🔻
IO Power (Pin 22, 24):	Disabled 🔹
Level Shift:	3.3 V 🔻

10. Press "Load File", browse and locate the EEPROM hex image, then press "Open".





11. Press the "Power On" button and then "Program and Verify".



Often an "Adapter Write failed" message will appear.

If a partial write was successful, then attempt the programming again.

1																				
		Offset	0	1	2	3	4	5	6	7	8	9	А	В	С	D	Е	F	ASC	1
Write 99304 bytes failed.		00000	49	44	54	2D	43	4D	58	00	56	32	2E	30	2E	31	00	00	IDT	- C M)
Device Control		00010	00	00	00	00	00	00	00	00	44	00	00	00	C0	BC	00	00	••••	• • •
-		00020	B9	58	58	99 A4	00	3D	04	20	00	00	54	00	90	50	00	00		=
larget:	Microchip Technology 24AA1025	00040	7D	92	CF	36	00	80	04	00	89	02	11	20	FD	01	11	20	}	6
Capacity:	128 Kilobytes	00050	21	02	11	20	3B	02	11	20	55	02	11	20	6F	02	11	20	i.,	;.
Bit rate:	√X -	00060	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00		
12C Slave Address:	0x50	00070	A9	02	11	20	BD	02	11	20	00	00	00	00	D1	02	11	20	• • •	••
	Quad	08000	E5	20	11	20	ED	1F	11	20	45	07	11	20	51	07	11	20	• •	
SPI I/O Mode:	Quad 👻	00090	5D	07	11	20	69	07	11	20	75	07	11	20	81	07	11	20	1	1.
Promira Power Control		000A0	8D BD	07	11	20	99	07	11	20	A5	07	11	20	B1 F1	07	11	20	•••	•••
Target Power (Pin 4, 6):	3.3 V 💌	000000	ED	07	11	20	F9	07	11	20	05	08	11	20	11	08	11	20		
IO Power (Pin 22, 24)	Disabled 💌	000D0	1D	08	11	20	29	08	11	20	41	AO	11	20	35	08	11	20).
101 0 Wei (111 22, 2 i).	Disabica .	000E0	41	80	11	20	4D	08	11	20	59	80	11	20	65	08	11	20	Α	Μ.
Level Shift:	3.3 V ▼	000F0	71	80	11	20	7D	08	11	20	89	80	11	20	95	08	11	20	q.,	}.
Adapters			-	_	_	1	Err	or												x
1 📝 Aardvark I2C/SPI	U TP2237-967188		ear			H	Γ													
Write failed	400 kHz 🗙	Trans	acti	on	Log			6		Ad	apte	er 1:	Writ	te fa	ailed	ł.				
		In	dex	Ti	me	star			~	Ch	eck	tran	sact	tion	log	for	mo	re de	tails.	
		0		20)17-	Jun														
		1		20)17-	Jun														
		2		20)17-	Jun											ſ		OK	
		3		20)17-	Jun														
I		II 1		N	17.	lun	-	-		1077			NII		men	FO		17		NTERNO

his		Data		
· · · · · · · · · · · · · · · · · · ·		Offset 0	1 2 3 4 5 6 7 8	9 A B C D E F ASCI
who 00004 huma failed		00000 49	44 54 2D 43 4D 58 00 56 3	32 2E 30 2E 31 00 00 IDT-CMX. V2.0.1
The your office roles.		00010 00	00 00 00 00 00 00 00 44 0	00 00 00 C0 BC 00 00 D
levice Control		00020 FB	OF 4D 99 00 00 11 20 04 1	BD 00 00 C4 33 00 00
arget:	Matchip Technology 244A3025	00030 39	58 58 A4 08 3D 04 00 00 0	00 54 00 9C 50 00 00 .XX=TP
apacity:	128 Kilobyte	00040 72	02 11 20 38 02 11 20 55 0	02 11 20 4F 02 11 20 1
trates	JX -	00050 00	00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00
	0.00	00070 A9	02 11 20 BD 02 11 20 00 0	00 00 00 D1 02 11 20
A Slave Address:	0850	00080 ES	20 11 20 ED 1F 11 20 45 0	07 11 20 51 07 11 20 E Q
PS 1/0 Mode:	Quad -	00090 50	07 11 20 69 07 11 20 75 0	07 11 20 81 07 11 20] i u
romira Power Contro	1	000A0 80	07 11 20 99 07 11 20 A5 0	07 11 20 B1 07 11 20
annal Rouse (Din & S).		00080 80	07 11 20 C9 07 11 20 D5 0	07 11 20 E1 07 11 20
a Acreance during also	1001	010000 20	07 11 20 29 07 11 20 05 1	00 11 20 11 00 11 20
D Power (Pin 22, 24):	Disabled •	010E0 41	08 11 20 40 08 11 20 59 1	08 11 20 45 08 11 20 1
rvel Shift:	3.3 -	000F0 71	08 11 20 7D 08 11 20 89 0	08 11 20 95 08 11 20 g]
dapters				
1 🖉 Aardvark 12C/SPI	₫ TP2237-967188	Cear	Film	
Write falle	400 ketz 🗙	Transacti	on Log	
		Index	Timestamp	Summary
		21	2017-Jun-26 09:14:24.694	Connected to Aardvark I2C/SPI at index 1 TP2237-967188 (
		22	2017-Jun-26 09:14:24.756	Supported Features: IDC, SPI(Standard)
		23	2017-Jun-26 09:14:37.329	Loaded Microchip 24AA1025 128 Kilobyte EEPROM. Maxim
		24	2017-Jun-26 09:16:05.727	Adapter 1: Program Target begin, with Verify.
		25	2017-Jun-26 09:16:13.268	Adapter 1: Write succeeded. (7.541 s)
		26	2017-Jun-26 09:16:15:977	Adapter I: Verify succeeded. (10.250 s)
		27	2017-Jun-26 09:16:16:093	Operation Complete.
			2017, June 35 09:16-16 144	Summany: Adapter 1: succeeded (10.417 s).
		28	PART-2011-PR-05/PR/PART	
		28 29	2017-Jun-26 09:19:50.606	Adapter 1: Program Target begin, with Verify.
		28 29 30	2017-Jun-26 09:19:50.606 2017-Jun-26 09:19:50.816	Adapter 1: Program Target begin, with Verify. Adapter 1: Slave NACK.
		28 29 30 31	2017-Jun-26 09:19:50.806 2017-Jun-26 09:19:50.806 2017-Jun-26 09:19:50.866	Adapter 1: Program Target begin, with Verify. Adapter 1: Slave NACK. Adapter 1: Write failed. (0.260 s)
		28 29 30 31 32	2017-Jun-26 09:19:50.606 2017-Jun-26 09:19:50.816 2017-Jun-26 09:19:50.866 2017-Jun-26 09:19:50.926	Adapter 1: Program Target begin, with Verify. Adapter 1: Slave NACK. Adapter 1: Write failed. (0.260 s) Operation Complete.

If none of the write was successful after a few

attempts, then check the setup.

"Adapter Write failed" message.

If repeated attempts to program the device still fail, then set the <writeTime> parameter in your microchip_i2c_eeprom.xml XML file (located in the "flash-center-windows-i686-v1.43\parts\" directory) to 10000 or greater as shown below:

<writeTime>10000 </writeTime>

```
<device version="1.0">
    <deviceName> 24AA1025 </deviceName>
    <deviceDescription>
        Microchip 24AA1025 128 Kilobyte EEPROM
        </deviceDescription>
        <capacity> 128*1024 </capacity>
        <writeSize> 128 </writeSize>
        <writeSize> 128 </writeSize>
        <writeTime>10000 </writeTime>
        <pageShift> 2 </pageShift>
</device>
```

4. Revision History

Revision	Date	Description
1.0	Dec.16.20	Initial release.

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