

PATA EDOM

EDM54-V / EDM54-VT

CDXXXXXR4-FXXXXXXX



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1. Description

ACPI PATA EDOM is the storage device based on NAND flash memory technology. This product complies with 40 PIN IDE(ATA) standard interface and is suitable for data storage media and code storage device for embedded system and boot disk. By using **PATA EDOM** , it is possible to operate good performance for the systems, which have IDE interface. With small form factor, the applicable appliance can add or install IDE storage device on its Mother Board or Complete set.

2. Features

- Small form factor with IDE (ATA) Standard Interface connector
- Memory Capacities:
 - 128MB
 - 256MB
 - 512 MB
 - 1GB
 - 2GB
 - 4GB
- Noiseless and stable installation to system
- Master and Slave, Write Protect Switch
- Operating as Boot Disk
- Operating voltage 5.0V operation
- Power Consumption: <120mA
- MTBF : 2,000,000hours
- Operation Temperature range:
 - Normal Temp: 0 to 70 °C. Storage Temperature range: -55 to 95 °C.
 - Wide-Temp:-40 to 85 °C. Storage Temperature range: -55 to 95 °C.
- Data Performance Speed:
 - Single Channel: Read: Up to 23.1 MB/sec, Write: Up to 20.2 MB/sec(Max.)
 - Dual Channel: Read: Up to 43.2 MB/sec, Write: Up to 28.3 MB/sec(Max.)

Items	Model		Capacity	Read MB/s	Write MB/s
EDM54	EDM54-V 128MB	1CH	128MB	21.1	13.1
	EDM54-V 256MB	1CH	256MB	20.6	13.6
	EDM54-V 512MB	1CH	512MB	23.1	20.2
	EDM54-V 1GB	1CH	1GB	20.6	20.2
	EDM54-V 2GB	2CH	2GB	41.4	28.3
	EDM54-V 4GB	2CH	4GB	43.2	27.7

3. Interface Description

3.1. Pin Assignment

The signals assigned for ATA applications are described in Table 1

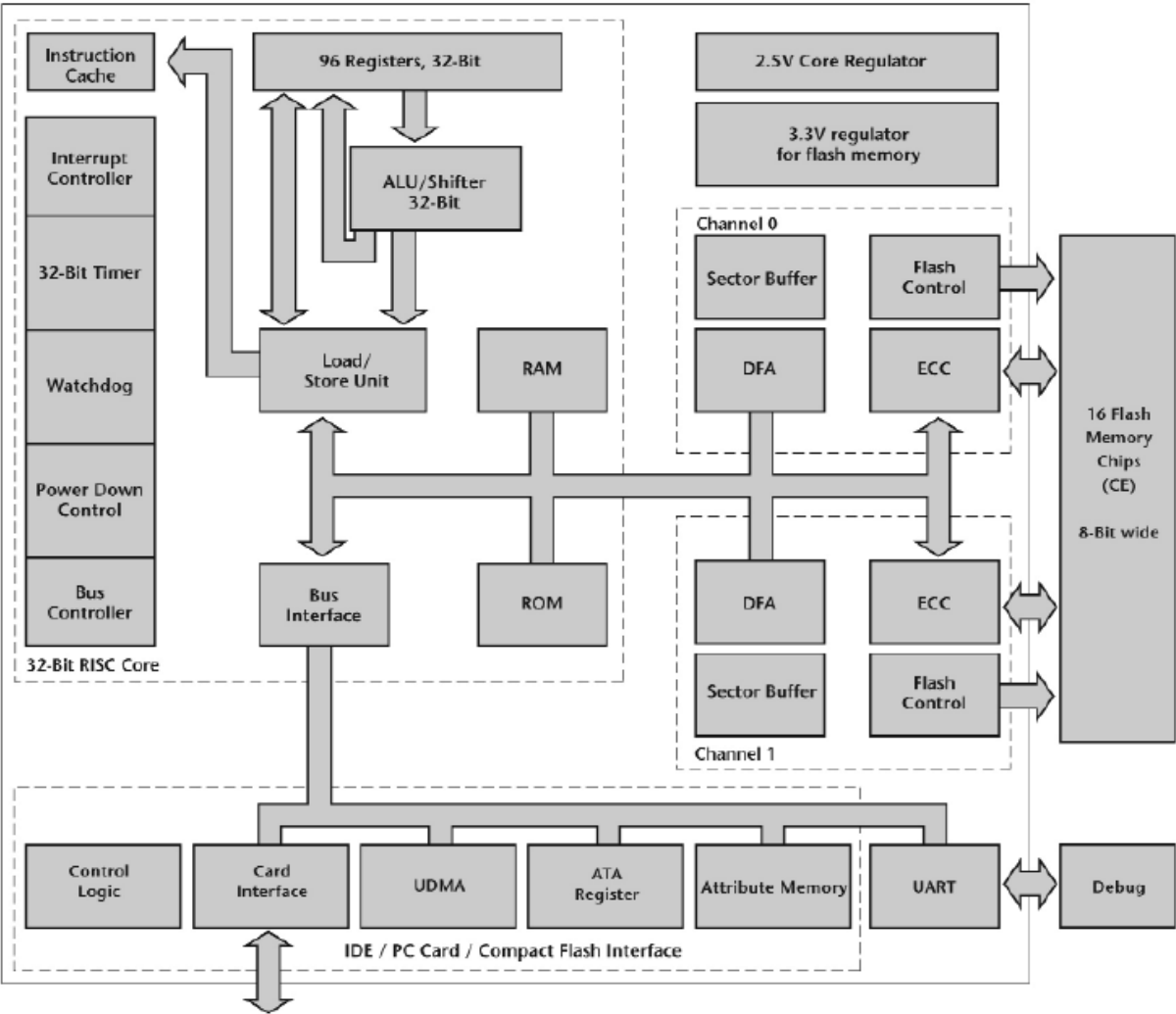
Signal name	Connector Contact (44Pins)	Conductor Contact (40 Pins)		Connector Contact (44Pins)	Signal name
RESET-	1	1	2	2	Ground
DD7	3	3	4	4	DD8
DD6	5	5	6	6	DD9
DD5	7	7	8	8	DD10
DD4	9	9	10	10	DD11
DD3	11	11	12	12	DD12
DD2	13	13	14	14	DD13
DD1	15	15	16	16	DD14
DD0	17	17	18	18	DD15
Ground	19	19	20	20	Vcc
DMARQ	21	21	22	22	Ground
DIOW-	23	23	24	24	Ground
DIOR-	25	25	26	26	Ground
IRDY	27	27	28	28	CSEL
DMACK-	29	29	30	30	Ground
INTRQ	31	31	32	32	Ground
DA1	33	33	34	34	PDIAG-
DA0	35	35	36	36	DA2
CS0-	37	37	38	38	CS1-
DASP-	39	39	40	40	Ground
Vcc	41	No present	No present	42	Vcc
Ground	43	No present	No present	44	reserved

* Notes:

1. All pins are in a single row, with a 2.54 mm (0.100") pitch.
2. The comments on the mating sequence apply to the case of backplane blind mate connector only. In this case, the mating sequences are:
 - - the pre-charge power pints and the other ground pins.
 - - the signal pins and the rest of the power pins.



3.2. Block Diagram



4. Specification

- Compliant with ATA-7 V3 specification.
- True IDE Mode supports:
 - Ultra DMA Modes: 0, 1, 2, 3, and 4.
 - PIO Modes: 0, 1, 2, 3, 4, 5, and 6.
 - Multi-Word DMA Modes 0, 1, 2, 3 and 4.
- Supports ECC (Error Correction Code).
- Supports Wear-leveling.
- Supports Bad Block Management.
- Operating System :
 - Windows family.
 - Linux family.
 - DOS or embedded system.

4.1. System Requirement

The Host system which is connected to PATA EDOM should meet system requirements at minimum

4.2. Power Requirement

Voltage: DC +5V \pm 5%

4.3. DATA Retention

10 years without requiring power support.

4.4. Wear-leveling

Dynamic Wear-Leveling for same level of Write/Erase Cycle.

4.5. Bad Block Management

The Bad Block of Flash Memory will be replaced into ones by controller.

5. ATA Command Set

ATA Command Set summarizes the ATA command set with the paragraphs that follow describing the individual commands and the task file for each.

No	COMMAND	Code	FR	SC	SN	CY	DH	LBA
1	Check Power Mode	E5h or 98h	-	-	-	-	D	-
2	Erase Sector(s)	C0h	-	Y	Y	Y	Y	Y
3	Execute Drive Diagnostic	90h	-	-	-	-	D	-
4	Flush Cache	E7h	-	-	-	-	D	-
5	Format Track	50h	-	Y	-	Y	Y	Y
6	Identify Device	ECh	-	-	-	-	D	-
7	Identify Device DMA	EEh	-	-	-	-	D	-
8	Idle	E3h or 97h	-	Y	-	-	D	-
9	Idle Immediate	E1h or 95h	-	-	-	-	D	-
10	Initialize Drive Parameters	91h	-	Y	-	-	Y	-
11	Media Lock	DEh	-	-	-	-	D	-
12	Media Unlock	DFh	-	-	-	-	D	-
13	NOP	00h	-	-	-	-	D	-
14	Read Buffer	E4h	-	-	-	-	D	-
15	Read DMA	C8h	-	Y	Y	Y	Y	Y
16	Read Long Sector	22h or 23h	-	-	Y	Y	Y	Y
17	Read Multiple	C4h	-	Y	Y	Y	Y	Y
18	Read Native Max Address	F8h	-	-	-	-	D	-
19	Read Sector(s)	20h or 21h	-	Y	Y	Y	Y	Y
20	Read Verify Sector(s)	40h or 41h	-	Y	Y	Y	Y	Y
21	Recalibrate	1Xh	-	-	-	-	D	-
22	Request Sense	03h	-	-	-	-	D	-
23	Seek	7Xh	-	-	Y	Y	Y	Y
24	Set Features	EFh	Y	-	-	-	D	-
25	Set Max Address	F9h	-	Y	Y	Y	Y	Y
26	Set Multiple Mode	C6h	-	Y	-	-	D	-
27	Set Sleep Mode	E6h or 99h	-	-	-	-	D	-
28	SMART	B0h	Y	Y	-	Y	Y	-
29	Standby	E2h or 96h	-	-	-	-	D	-
30	Standby Immediate	E0h or 94h	-	-	-	-	D	-
31	Translate Sector	87h	-	Y	Y	Y	Y	Y
32	Write Buffer	E8h	-	-	-	-	D	-
33	Write DMA	CAh	-	Y	Y	Y	Y	Y
34	Write Long Sector	32h or 33h	-	-	Y	Y	Y	Y
35	Write Multiple	C5h	-	Y	Y	Y	Y	Y
36	Write Multiple w/o Erase	CDh	-	Y	Y	Y	Y	Y
37	Write Sector(s)	30h or 31h	-	Y	Y	Y	Y	Y
38	Write Sector(s) w/o Erase	38h	-	Y	Y	Y	Y	Y
39	Write Verify	3Ch	-	Y	Y	Y	Y	Y

Definitions:

FR = Features Register

SC = Sector Count Register

SN = Sector Number Register

CY = Cylinder Registers

DH = Device/Drive/Head Register

LBA = Logical Block Address Mode Supported (see command descriptions for use).

Y - The register contains a valid parameter for this command. For the Drive/Head Register Y means both the device and head parameters are used.

D - only the device parameter is valid and not the head parameter; C – The register contains command specific data (see command descriptions for use).

6. Electrical specification

6.1. Absolute Maximum Rating

Temperature (ambient) under Bias:	0°C to + 85°C
Extended temperature range on request	
Storage Temperature:	-40°C to + 85°C
Voltage on any Pin with respect to ground:	-0.5V to VCC + 0.5V

6.2. D.C. Parameters

Supply Voltage VCCH:	5V±0.5V
VDDF Output Voltage:	3.3V±0.3V
VDDC Output Voltage:	2.5V±0.25V
Temperature (ambient):	0°C to + 85°C

Symbol	Parameter	Min	Max	Units	Notes
V _{IL}	Input LOW Voltage	-0.3	+0.8	V	
V _{IH}	Input HIGH Voltage	2.0	V _{CC} +0.3	V	
V _{OL}	Output LOW Voltage		0.45	V	at 4mA (12mA for DASP)
V _{OH}	Output HIGH Voltage	2.4		V	at 1mA
I _{CC}	Operating Current Sleep mode Operating, 20 MHz Operating, 40 MHz		0.35 45 80	mA mA mA	typical 0.2mA typical 30mA typical 50mA
I _{LI}	Input Leakage Current		±10	µA	if not pull-up/pull-down
I _{LO}	Output Leakage Current		±10	µA	
C _{I/O}	Input/output Capacitance		10	pF	

7. Environmental Specification

7.1. Temperature

- Temperature:
 - ◆ Normal Operating Temperature: 0°C ~ +70°C
 - ◆ Wide temp Operating Temperature: -40°C ~ +85°C
 - ◆ Storage Temperature: -40°C to +85°C
- Humidity:
 - ◆ Operating Humidity:0% ~55%
 - ◆ Non-Operating Humidity:10%~ 95% (with no condensation relative

7.2. Vibration

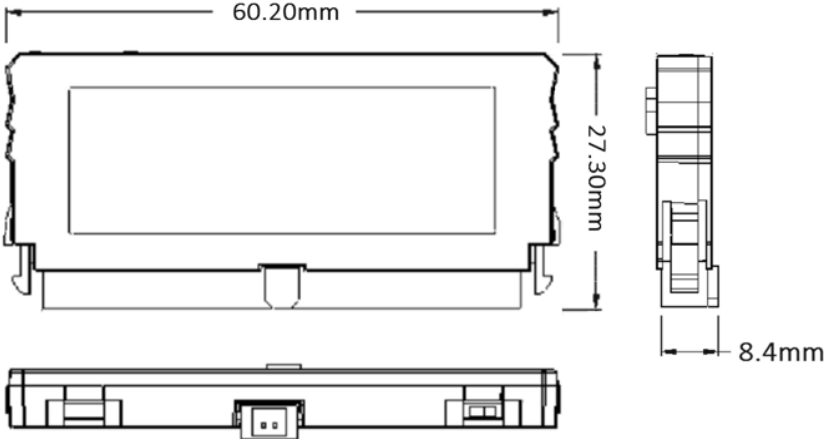
Parameter	Specifications
Operating	2.17G , 7 - 500HZ
Non-Operating	3.0G , 5 - 500HZ

1.1 Shock

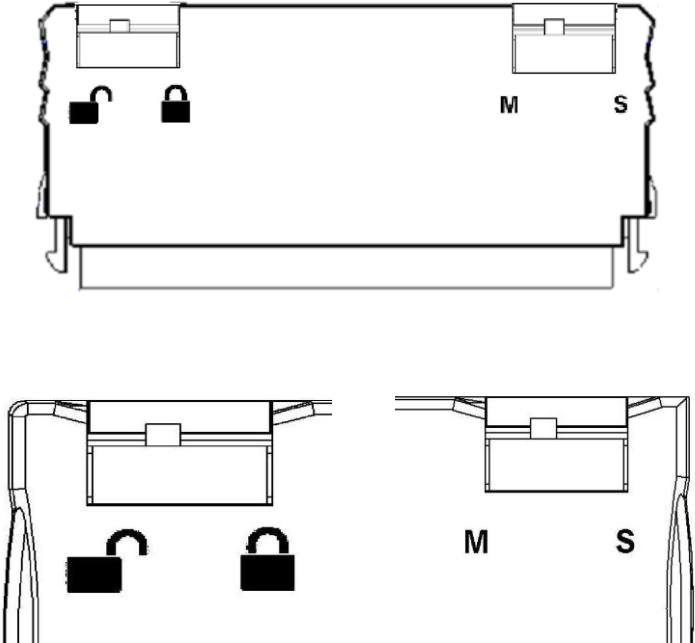
Parameter	Acceleration Force (G)	Half-sine Pulse Duration (msec)
Operating	500	2
	1,000	1
	1,500	0.5
Non-Operating	200	10
	1,500	1
	1,500	0.5



8. Physical outline

8.1. Mechanical



8.2. Functions



Write protect	Unlock	Master	Slave
		M	S

9. Ordering Information

P/N	Capacity _(Max)	Remark
CDC128MR4-F004A009	128MB	Toshiba SLC Normal-Temp
CDC256MR4-F104A009	256MB	
CDC512MR4-F204A005	512MB	
CDC001GR4-F304A005	1GB	
CDC002GR4-F304A005	2GB	
CDC004GR4-F404A005	4GB	
CDI128MR4-F004A009	128MB	Toshiba SLC Wide-Temp
CDI256MR4-F104A009	256MB	
CDI512MR4-F204A005	512MB	
CDI001GR4-F304A005	1GB	
CDI002GR4-F304A005	2GB	
CDI004GR4-F404A005	4GB	

10. Contact Information

ACPI, a storage business company, specializes in the design and marketing of SSD, EDM, and Industry CF products. For further information, please reach us at the following contact information:



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