ShenZhen Renice Technology Co., Ltd

X5-E Compact Flash Card

Datasheet

V1.0

2017-4-5

CATALOGUE

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1. Introduction

1.1 Product Overview

Renice X5-E CF products comes with the industry standard Compact Flash form factor, provides both high performance and reliability, with great endurance working in harsh environment such as low/high temperature, great shock, vibration and interference. With these advantages and its ATA interface which is fully compatible with most popular transfer modes such as UDMA, Multiword DMA and PIO, Renice X5-E CF Card is a ideal storage option for embedded computing, industrial applications, network & communications, public security, military, aerospace, medical and automotive fields.

1.2 Feature

● Performance

   Host Transfer rate: 133MB/S

   Read/Write Speed: 100MB/80MB/S (Typical)

   Transfer rates rating is 600x

● Form factor: 1.0 inch (42.8mmX36.4mmX3.3mm) L×W×H

● Interface standard: IDE (50Pin)

● Density: 4GB~128GB (MLC)

            1GB~64GB (SLC)

● Weight: 12±2g

● Input voltage: 3.3V or 5V (±5%)

● Industrial operating temperature range from -40 to +85℃

● Flash management algorithm: static and dynamic wear-leveling, bad block management algorithm

● Supports dynamic power management and SMART (Self-Monitoring, Analysis and Reporting Technology)

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● ECC (Error Correction Code): Advanced 72bit hardware BCH ECC engine

● Automatic sleep and wake-up mechanism to save power

● Read endurance: unlimited

● Data retention: 10 years

● MTBF: >3,000,000 Hours

2. Functional Block Diagram

Figure 1: Block Diagram
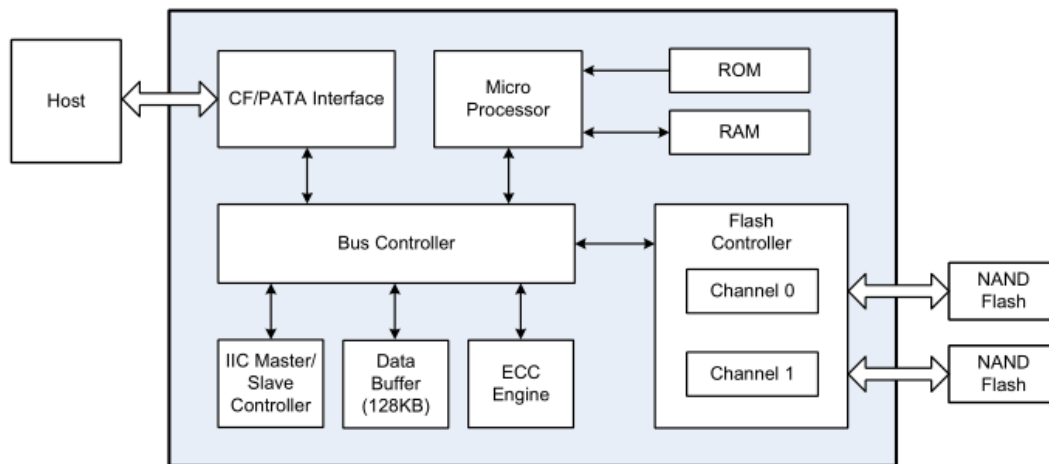
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3. Product Specifications

3.1 Physical Specifications

Form factor		1.0 inch
Dimensions(mm)	Length	42.8±0.10
	Width	36.4±0.15
	Height	3.3±0.10
Weight		12±2g
Connector		50pin IDE

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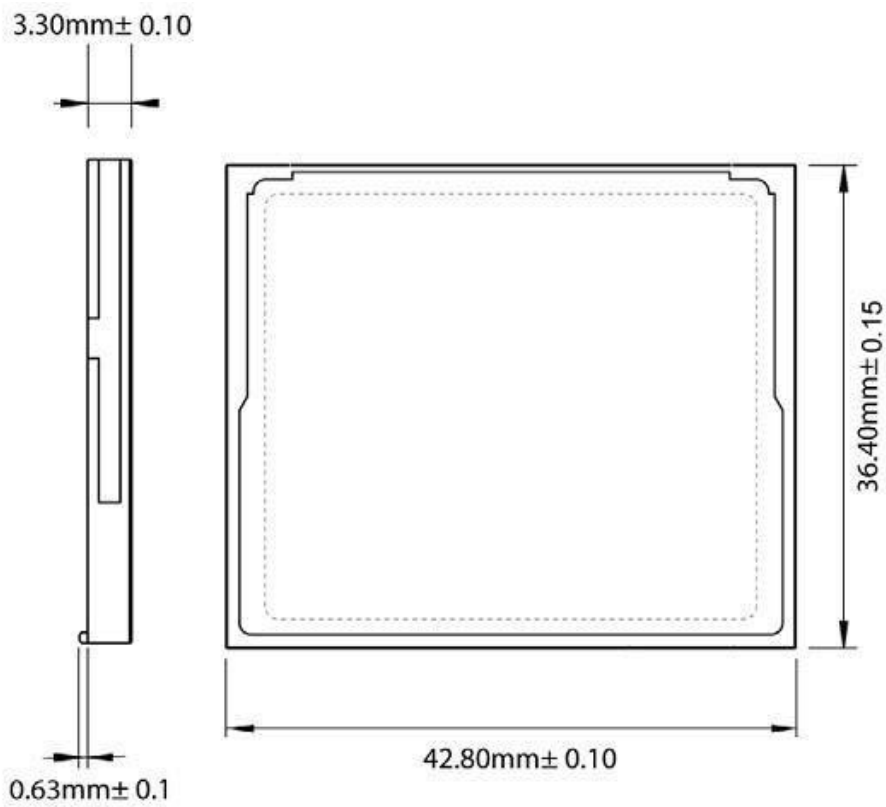
3.2 Host Interface

Fully compliant with CFA6.0 and ATA-8 Standard

· ATA Transfer Modes:

- UDMA 0-7

- MWDMA 0-4

- PIO 0-6

- ECC (Error Correction Code) 72 bit

- Supports True IDE, PC Card Memory and I/O modes

- Supports TRIM command

4. Interface Description

4.1 Pin Assignment

4.2 Pin Description

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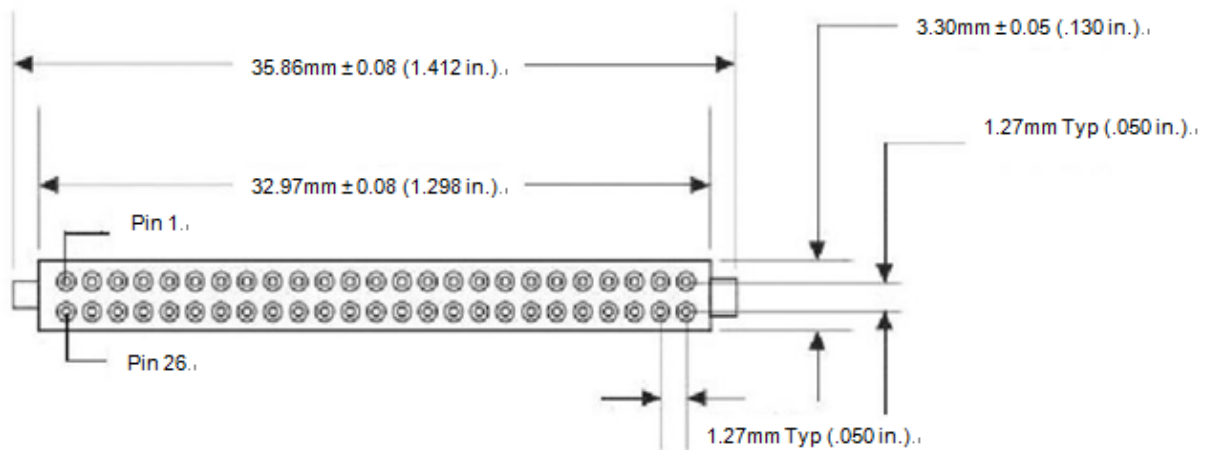| 16	A04	I	16	A04	I	16	A04^2	I
17	A03	I	17	A03	I	17	A03^2	I
18	A02	I	18	A02	I	18	A02	I
19	A01	I	19	A01	I	19	A01	I
20	A00	I	20	A00	I	20	A00	I
21	D00	I/O	21	D00	I/O	21	D00	I/O
22	D01	I/O	22	D01	I/O	22	D01	I/O
23	D02	I/O	23	D02	I/O	23	D02	I/O
24	WP	O	24	-IOIS16	O	24	-IOCS16	O
25	-CD2	O	25	-CD2	O	25	-CD2	O
26	-CD1	O	26	-CD1	O	26	-CD1	O
27	D11^1	I/O	27	D11^1	I/O	27	D11^1	I/O
28	D12^1	I/O	28	D12^1	I/O	28	D12^1	I/O
29	D13^1	I/O	29	D13^1	I/O	29	D13^1	I/O
30	D14^1	I/O	30	D14^1	I/O	30	D14^1	I/O
31	D15^1	I/O	31	D15^1	I/O	31	D15^1	I/O
32	-CE2^1	I	32	-CE2^1	I	32	-CS1^1	I
33	-VS1	O	33	-VS1	O	33	-VS1	O
34	-IORD	I	34	-IORD	I	34	-IORD^7 / HSTROBE^8 / -HDMARDY^9	I
35	-IOWR	I	35	-IOWR	I	35	-IOWR^7 / STOP$^{8, 9}$	I
36	-WE	I	36	-WE	I	36	-WE^3	I
37	READY	O	37	-IREQ	O	37	INTRQ	O
38	VCC		38	VCC		38	VCC	
39	-CSEL^5	I	39	-CSEL^5	I	39	-CSEL	I
40	-VS2	O	40	-VS2	O	40	-VS2	O
41	RESET	I	41	RESET	I	41	-RESET	I
42	-WAIT	O	42	-WAIT	O	42	IORDY^1 / -DDMARDY^8 / DSTROBE^9	O
43	-INPACK	O	43	-INPACK	O	43	DMARQ	O
44	-REG	I	44	-REG	I	44	-DMACK^6	I
45	BVD2	O	45	-SPKR	O	45	-DASP	I/O
46	BVD1	O	46	-STSCHG	O	46	-PDIAG	I/O
47	D08^1	I/O	47	D08^1	I/O	47	D08^1	I/O
48	D09^1	I/O	48	D09^1	I/O	48	D09^1	I/O
49	D10^1	I/O	49	D10^1	I/O	49	D10^1	I/O
50	GND		50	GND		50	GND	

5. Power Specifications

5.1 Power Specification

Operating voltage: 3.3V or 5V(±5%)

5.2 Power Consumption (typical)

Operation (Read/Write) – 0.365W

Idle – 0.018W

Sleep (Partial/Slumber) – 0.012W/0.018W

6. Reliability Specification

Item	Features	
Temperature	Operating	Industrial：-40~85℃
		Storage：-50~90℃
Humidity	5-95%	
Vibration	20G(7-2000HZ)	
Shock	2,000G(@0.3ms half sine wave)	

6.1 Wear-leveling

Renice X5-E Compact Flash drive supports both static and dynamic wear-leveling; these two algorithms guarantee all type of flash memory at same level of erase cycles to improve lifetime limitation of NAND based storage.

6.2 Endurance

Data retention: >10 years (@25C)

Read endurance: unlimited

6.3 H/W ECC and EDC for NAND Flash

Max. 72bit ECC BCH

6.4 MTBF

MTBF (Mean Time between Failures) of Renice CF card >3,000,000 hours

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7. Ordering Information

Part Number	Description
RIM004-PX5C-E	X5-E 4GB MLC Industrial Compact Flash Card
RIM008-PX5C-E	X5-E 8GB MLC Industrial Compact Flash Card
RIM016-PX5C-E	X5-E 16GB MLC Industrial Compact Flash Card
RIM032-PX5C-E	X5-E 32GB MLC Industrial Compact Flash Card
RIM064-PX5C-E	X5-E 64GB MLC Industrial Compact Flash Card
RIM128-PX5C-E	X5-E 128GB MLC Industrial Compact Flash Card
RIS001-PX5C-E	X5-E 1GB SLC Industrial Compact Flash Card
RIS002PX5C-E	X5-E 2GB SLC Industrial Compact Flash Card
RIS004-PX5C-E	X5-E 4GB SLC Industrial Compact Flash Card
RIS008-PX5C-E	X5-E 8GB SLC Industrial Compact Flash Card
RIS016-PX5C-E	X5-E 16GB SLC Industrial Compact Flash Card
RIS032-PX5C-E	X5-E 32GB SLC Industrial Compact Flash Card
RIS064-PX5C-E	X5-E 64GB SLC Industrial Compact Flash Card

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8. Part Number Naming Rule

R I M 128 – P X5 C – E

Renice

Temp Range:
I-Industrial

Flash Type:
M: MLC
S: SLC

Capacities:
001:1GB
002:2GB
004:4GB
008:8GB
016:16GB
032: 32GB
064: 64GB
128: 128GB

PATA Interface

X5SeriesRenic

CF Card

Extended