CPC Universal 512K Ram Expansion RC-2-Bulldog Release Notes

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Summary

This is a universal 512K RAM expansion card for all Amstrad CPC models.

The board has an 'M4' connector so requires a suitable motherboard or adapter to mount

On the 6128 and later computers the board provides a full 512K RAM expansion following

On 464 and 664 computers the board will provide either

- a full 512K RAM expansion with the same limitations on mode C3 which the DK'Troni
 X-MEM, Zaxon), or
- a slightly smaller 448K expansion with full CPC6128 compatibility in mode C3, where internal RAM.

Current status is that the card is fully working for the 6128/Plus computers, but the 464/66 follow with more detail.

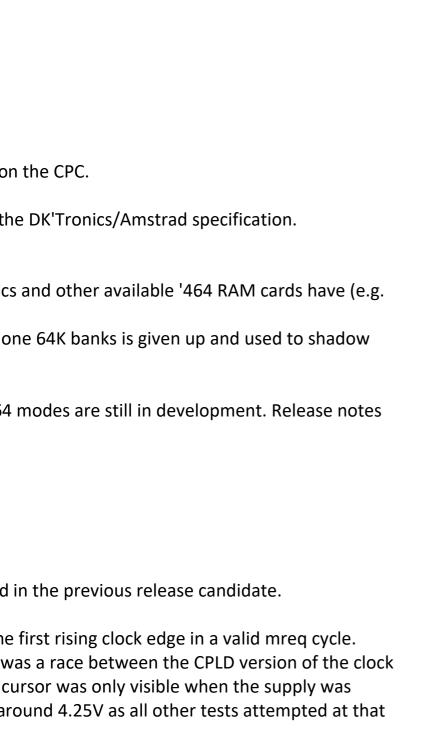
Release Notes

RC-2-Bulldog is the second release candidate for alpha testing.

The ability to run in overdrive mode without shadow memory is restored - this was disable

The code has been improved to be able to backdrive ADR15 in mode 3 if required before the Previously this was being driven based on the value of a FF clocked by that edge and there and CPC clock. This showed up as a voltage dependency in FutureOS which meant that the ramped up above 5V. This issue is resolved in the new code and Future OS works down to a voltage.

At the other end of the valid MREQ cycle the RD* overdriving, if required, has been extend MREQ* after seeing slightly different behaviour between the original prototype card (alway mode testing (very occasional base RAM fails in the TEST.bin memory test). With this fix becorrectly



ed to the next trailing clock edge after rising ys reliable) and a second card just made up for th cards now appear to behave identically and

The DIP Switches work as follows

DIP	Function
1	ON selects 464 mode which overdrives RD_B and ADR15 as required, OFF selects
2	turns on shadow memory
3	selects partial shadow memory for mode3 only (OFF), or full shadow memory (ON) using SRAM instead of CPC base RAM for all addresses.
4	selects shadow memory bank as low bank 3 (OFF) or high bank 7 (ON).

When setting DIP4 be careful because the DK'Tronics Silicon Disk software does not do a go declare banks 4-7 available for the disk even if DIP4 is set ON which effectively means that

NB - for DIP switches 3 and 4 to take effect you need to power cycle the CPC. These switch

Recommended DIP settings in this release candidate are

Configuration	DIP1	DIP2	DIP3	DIP4	Application	Comment
1	OFF	OFF	OFF	OFF	6128 or Plus computers	Disable overdrivexpansion
2	ON	ON	OFF	OFF	464 or 664 computer using DK'Tronics silicon disk	Provides a 448K disk + a 192K RA
3	ON	ON	OFF	ON	464 or 664 computer not using DK'T silicon disk	Provides a 448K
4	ON	ON	ON	OFF	464 or 664 computer using DK'Tronics silicon disk	Provides a 448K disk + a 192K RA all memory read
5	ON	ON	ON	ON	464 or 664 computer not using DK'T silicon disk	Provides a 448K all memory read
6	ON	OFF	OFF	OFF	464 or 664 computers	This is the true I mode C3 in the

6128/Plus mode	
ood check of the n	nemory available. SDISC will able.
nes are read and l	atched only on startup.
re and shadow me	emory and provide a full 512K
B extension which	n can be used as a 256K silicon
B extension	
	n can be used as a 256K siliconing full shadow memory so that om the SRAM
B extension, using	g full shadow memory so that om the SRAM
	which does not fully support he 6128, but does provide a full

Other configurations are possible, but not currently tested or recommended.

Note when running a 464 in configurations 4 or 5 (full shadow memory) the base RAM of t card can potentially revive dead CPCs which have faulty base RAM with the only proviso th pixel corruption on screen. Full shadow mode has been tested with Gerald's RamTest ROM

Testing Results

Several cards have been tested now using 3 different CPCs: 1x CPC464 and 2xCPC6128s

Full tests have been run at 4.8V, but some additional tests have been run in the voltage rar

Full Test results are visible on Google Sheets here

https://docs.google.com/spreadsheets/d/11wxhIDWy2wNmKSXZwBqjqQjMN2nNZDtILEvy

Power Consumption

Supply Voltage	Current	Comment
4.25V	70mA	Technically below the minimum operating voltage of the CPLD, b have passed
4.5V	85mA	
4.75V	95mA	Likely supply voltage if used on Mother X4 due to schottky diode
5.0V	105mA	Nominal 5V to match CPC
5.25V	120mA	
5.5V	145mA	

and for most purposes is sufficient - see the ow.
he CPC is only ever used for video data. Thus this at any faults in video RAM will result in visible - see below.
nge 4.25V through 5.5V.
6_GrM8I/edit?usp=sharing
ut all tests tried at this voltage (see table above)
drop