

CPM Prototype

Latest Project Specification, available at:

<http://hepwww.rl.ac.uk/Atlas-L1/Modules/CPM/cpmspec103.pdf>

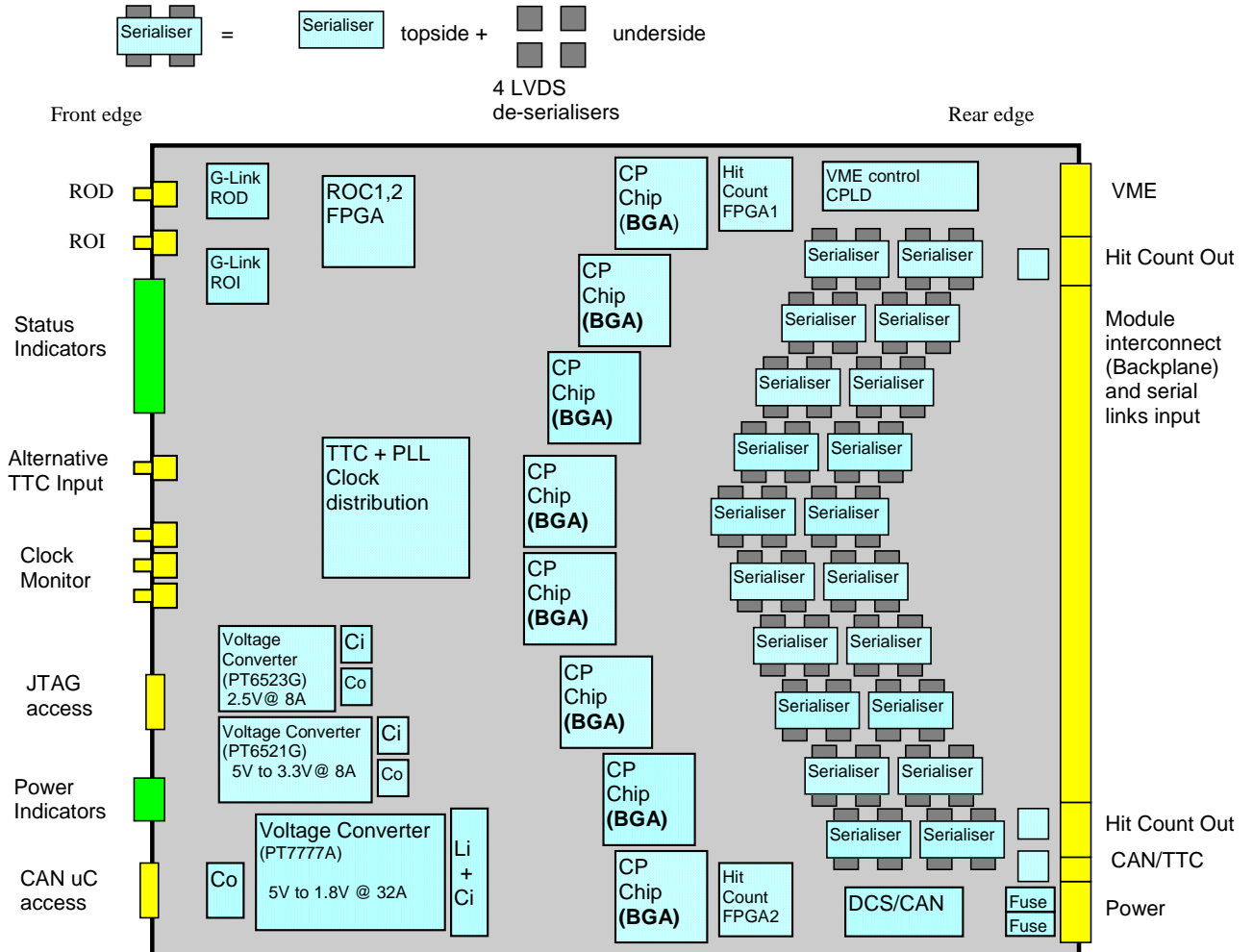
- Layout Illustration
- I/O
- Power Supplies
- Timescales

R. Staley



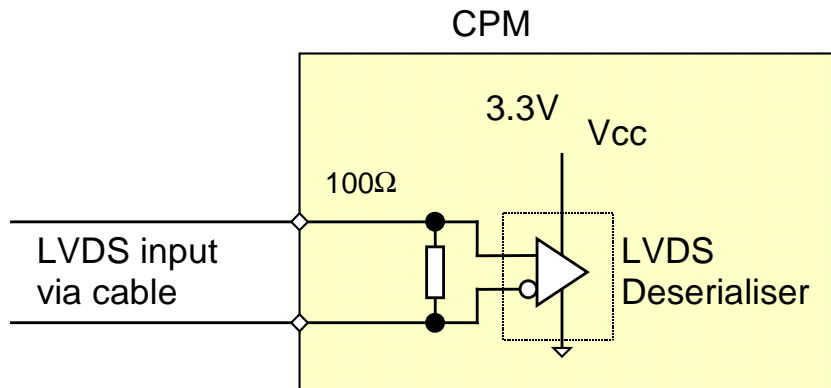
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Approximate CPM layout



9U single width (20mm) module , 400mm long .

LVDS inputs

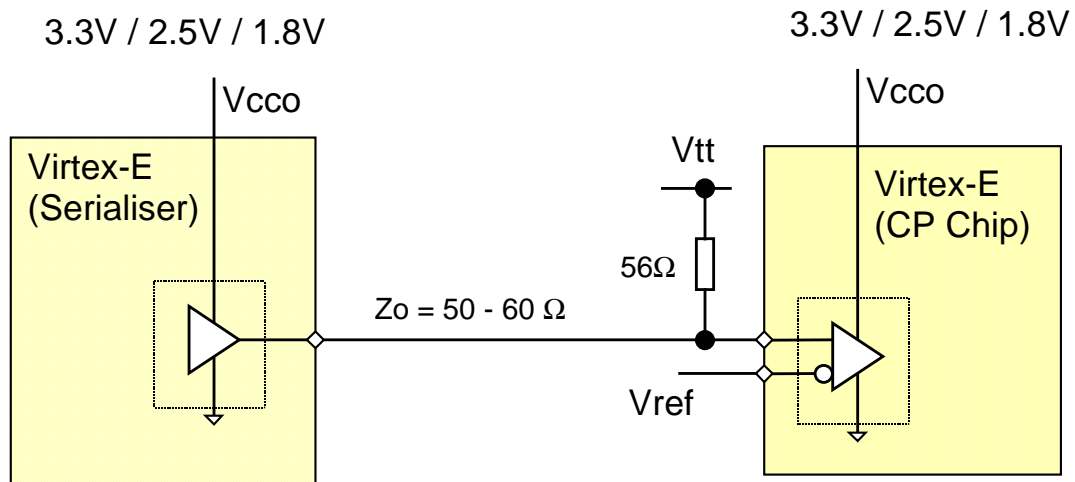


480Mbaud LVDS inputs are terminated by the cable characteristic impedance of 100Ω .

LVDS inputs have threshold of 50mV peak differential, with signal levels of the order of 200mV peak.

The inputs will tolerate applied voltages between -0.3V to $+3.6\text{V}$ (with respect to ground), even when the module is un-powered.

160Mbaud links – Options for Virtex-E I/O



Selectable I/O supply voltage (V_{cco}) for Virtex-E devices, and adjustable line termination voltage (V_{tt}) enables a number of single-ended I/O standards to be investigated:

I/O Standard	V_{cco}	V_{ref}	V_{tt}
LVTTL	3.3V	N/A	1.5V
LVC MOS2	2.5V	N/A	1.2V
LVC MOS18	1.8V	N/A	1.2V
CTT	3.3V	1.5V	1.5V

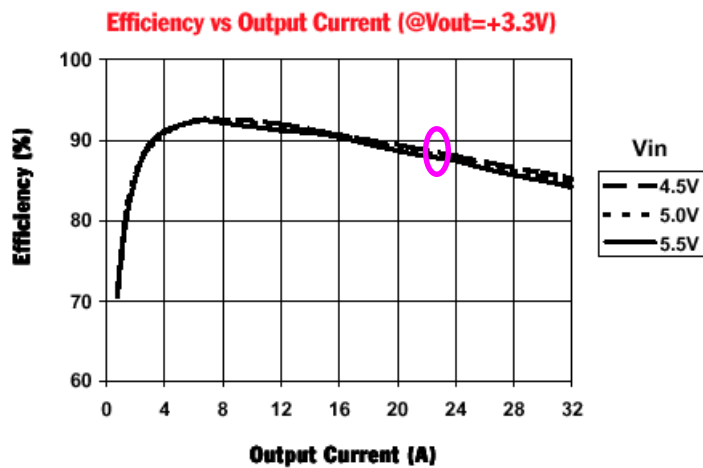
Not excluding other standards ...

Onboard DC/ DC converters

- Limited number of High Current Power connectors.
- High Current demand -> Switchers

1.8V supply estimated to draw 23A.

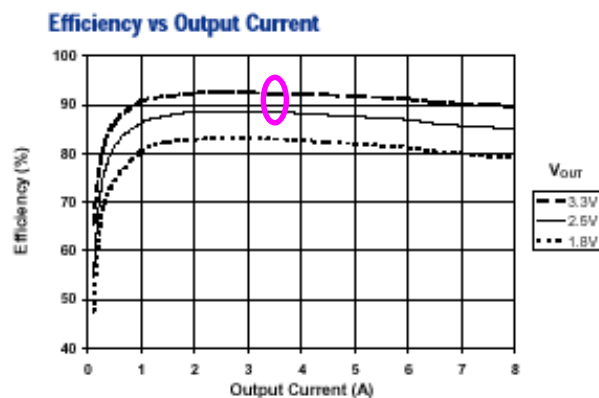
- PT7777A DC / DC converter rated to 32A max



3.3V supply estimated to draw 3.3A.

- PT6521G DC / DC converter rated to 8A max

PT6521, PT6523, PT6526; $V_{IN} = 5.0V$ (See Note A)



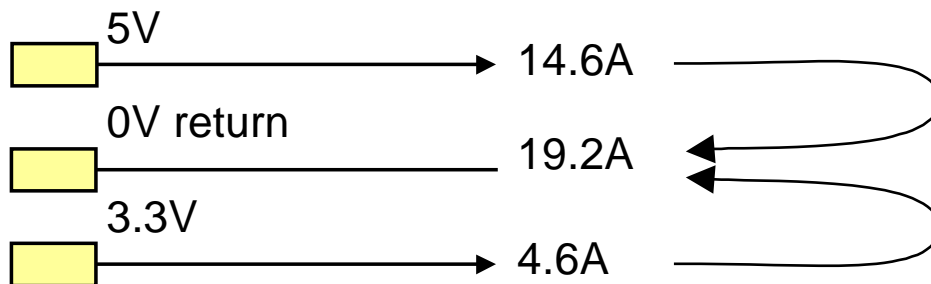
Power Requirements

		Conversion	5V drain
1.8V	41W	85% →	9.6A
2.5V	3.3W	85% →	0.8A
3.3V	10.8W	85% →	2.5A
5V	8.5W	→	1.7A

Total 5V current 14.6A

3.3V LVDS	15 W	4.6A
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Power Connectors should be rated well above 20A:



Module Power Consumption Estimated at $\approx 90W$

Module Connectors

AMP provide PCB mounting Power connectors rated upto 40A - dependant upon PCB copper thickness.

- Part # 100090

Also available - a range of Cable Terminated connectors with different current ratings:

10A - Part # 100083

20A - Part # 100082

40A - Part # 100081

Compatible ? - Yes see drawing →

Timescales

	<u>Dates</u>
Schematic Design	Nov. - December 2000
Layout	Jan. 2000 - April 2001
Assembly	May 2001
Module test (B'ham)	June 2001
CP system test	July 2001
Available for Slice Test	Aug. 2001

There will be a Final Design Review in late 2001/early 2002 before final production starts.