THIS SCHEMATIC IS A REVERSE ENGINEERING WITH GUESSING! IT WORKED WITH 3 PCIe CARDS ON 1 PI5. DO NOT USE FOR ANYTHING SERIOUS!

PCIe EMS R4.0 V1.0, §1.5:
- Reference clock (REFCLK−/REFCLK+), must be supplied by the system (see Section 2.1.1)
- Add−in Card presence detect pins (PRSNT1# and PRSNT2#), required
- PERST#, required
- CLKREQ#, optional
- JTAG, optional
- SMBus, optional
- Wake (WAKE#), required only if the device/system supports wakeup and/or the Optimized Buffer Flush/Fill (OBFF) mechanism
- Power Brake (PWRBRK#), optional
- +3.3 Vaux, optional

See also: https://en.wikipedia.org/wiki/PCI_Express

+3.3VA=3V3AUX
3V3AUX is an always−on 3V3 used for WAKE#
Doubt the Pi5 supports WAKE, so strap to 3V3

R6 0

PCIe EMS R4.0 V1.0, §3.2: "the system board must connect PRSNT1# to GND". (See Figure 14)

J1 10018783−11200TLF

R1 0

R4 10k R5 10k R7 10k R8 10k

R3 10k

R2 10k

PCIe EMS R4.0 V1.0, §3.2: "separately connect all the PRSNT2# pins together to a single pull−up resistor". (See Figure 14)

PCI Express® Gen−3, x1 Lane

H2C = Host to Card
C2H = Card to Host
OD = Open drain
SNS = Sense pin

D3 DNF
R10 DNF
R11 DNF
R12 DNF

Options to jumper signals to unknown pins if/when data available

Q1 BS170F
R9 0
R30 10k

C7 150u, C8 10u, C9 10u, C10 100n, C11 100n, C12 100n, C13 100n, C14 100n

Decoupling: one per pin + larger per side

C4 150u, C15 10u, C16 10u, C17 100n, C18 100n, C19 100n, C20 100n, C1 100n

Pi5 FPC 5V 1A max

J3 Pi5 PCIe [GPIO] [USBC]

Idles at 3V3.
Pulled up with a ~47k resistor?
(Active low open drain input?)
No kernel message/change in pinctrl when grounded

Also a wake signal according to pinctrl:
PCIE_SCL/GPIO15 & PCIE_RP1_WAKE/GPIO28 linked on Pi5??

Pin 1: very likely an active high reset
Pin 2: No idea. It doesn't do anything!
Pin 3: I2C SDA
Pin 4: I2C SCL (and WAKE?)

M1−M4 are bonded in the connector and GND.

Wurth 687316124422 ?

H1 H2 H3 H4 Grounded board mounting holes

Voltage test points: TP1 3V3, TP2 3V3A, TP3 5V0, TP4 12V, TP5 GND

J2 12V IN, D1, D2 option to supply 3V3 from 5V?

U1 Mini360

C2 100n, C3 10u, C5 100n, C6 10u

Spec for 75W Power:
+3V3: 3.0A / 1000uF max
+12V0: 5.5A / 2000uF max
+3V3A: 0.4A / 150uF max

Notes:
Watch 12V current on connector
Pi5 only supplies 5V 1A: 5W max

https://github.com/m1geo/Pi5_PCIe
https://www.george−smart.co.uk
George M1GEO, Chris G8OCV

Sheet: /
File: Pi5_PCIe.kicad_sch

Title: Raspberry Pi 5 PCIe Breakout

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