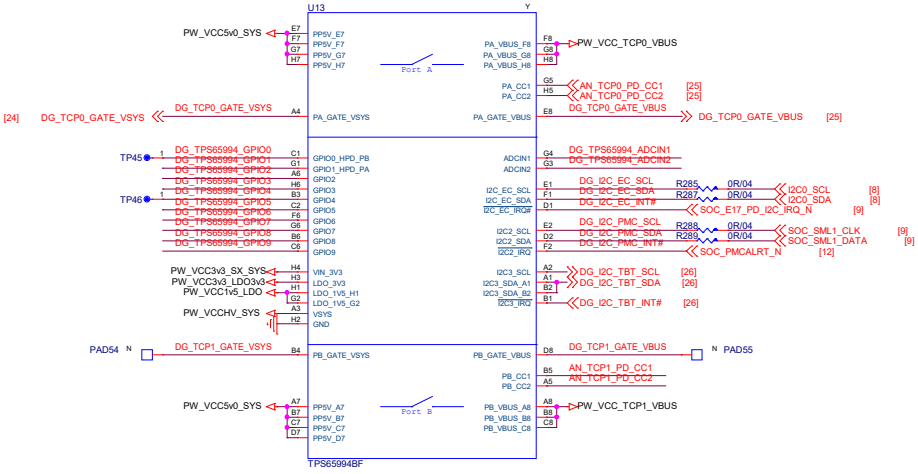
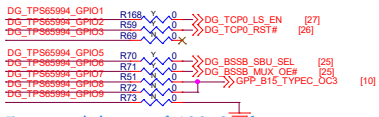
TPS65994 (USB PD 3.0) - Dual Port Controller

TPS65994 Symbol

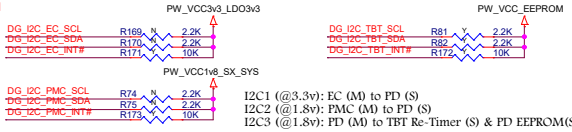


HW Pull-Up/Pull-Down



TI994 GPIO Mapping:
TCP1_LS_EN - GPIO0 (Push-Pull)
TCP0_LS_EN - GPIO1 (Push-Pull)
TCP0_RESET# - GPIO2 (Push-Pull)
TCP1_RESET# - GPIO4 (Push-Pull)
BSSB_MUX_SEL - GPIO5 (Push-Pull)
BSSB_MUX_OE# - GPIO6 (Push-Pull)
PROCHOT# - GPIO9 (Open-Drain)
For more GPIOs please follow MTL-P/M RVP

Ensure minimum of 100uSec between
TCPx_LS_EN assert to TCPx_RESET# assert



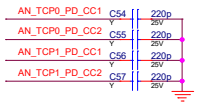
I2C1 (@3.3v): EC (M) to PD (S)
I2C2 (@1.8v): PMC (M) to PD (S)
I2C3 (@1.8v): PD (M) to TBT Re-Timer (S) & PD EEPROM(S)

ADCIN1 = 7
ADCIN2 = 0

EC_I2C Address:
Port A: 0x20
Port B: 0x24

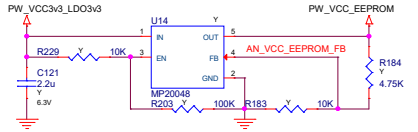
From TPS65994 Datasheet:
SafeMode: The device does not enable the sink path. USB PD is disabled until configuration is loaded. Note that the configuration could put the device into a source-only mode. This is recommended when the application loads the patch from EEPROM.

For all other configurations (AlwaysEnableSink, SinkRequires_3.0A, SinkRequires_1.5A, NegotiateHighVoltage), I2C isolation circuit will be recommended on HBR's I2C pins, to avoid I2C glitch.



To support vPRO docking PD FW should support vPRO Alternate mode and use vHPD

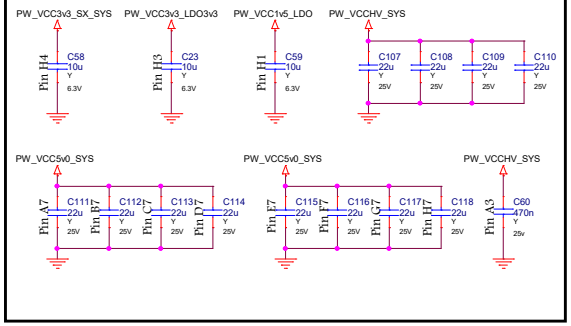
uLDO for EEPROM



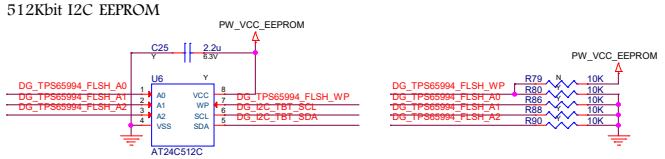
PW_VCC1v8_EEPROM:
Vout (Max) = 1.84v
Vout (Typ) = 1.82v
Vout (Min) = 1.80v

Vout = 1.234 * (1 + Rup/Rdown)
Vout = 1.234 * (1 + 4.75K / 10K) = 1.82v

Power Supply Filters



512Kbit I2C EEPROM



FW Patch can be upload using external EEPROM connected to I2C3 or thru EC over I2C1