Voltage regulators

RESET, PGOOD and VDIV can be left NC since we don't need those features.
ENx is open drain, NC = enabled.

U1A TPS65261
U1B TPS65261
U1C TPS65261
U1D TPS65261
U2 MIC5504-1.8YM5

1.1V rail, Max 3A
Ra = Rb * (0.6 / (Vout - 0.6))
Vout = (1 + 15e3/18e3) * 0.6 = 1.1V

2.5V rail, Max 2A
Vout = (1 + 15e3/4.7e3) * 0.6 = 2.51V

3.3V rail, Max 2A
Vout = (1 + 15e3/3.3e3) * 0.6 = 3.33V

1.8V rail, Max 300mA

FPGA Power

U3I LFE5U-85F-6BG381C

USB and FT600

J2 USB_B_Micro
J5 PUSB3FR4Z
J3 USB_C_Receptacle
FB1 Ferrite_Bead
U4 FT600Q
U3A LFE5U-85F-6BG381C
BANK0

No idea if these are needed so let's have OR so we can patch it later.

JTAG and Flash

J4 Conn_JTAG
U3J LFE5U-85F-6BG381C
JTAG PROG
U3G LFE5U-85F-6BG381C
BANK8
U5 IS25LP128F-JBLE
D1 LED

J1 Conn_02x20_Odd_Even

U3B LFE5U-85F-6BG381C
BANK1
U3C LFE5U-85F-6BG381C
BANK2
U3D LFE5U-85F-6BG381C
BANK3
U3E LFE5U-85F-6BG381C
BANK6
U3F LFE5U-85F-6BG381C
BANK7
U3H LFE5U-85F-6BG381C
BANK50,51
SERDES

Design goals:

- High speed transfers with the FT600. Should reach 190MB/s theoretically with 16 bit @ 100MHz.
- Should work with any variant of LFE5U. i.e. 12F, 25F, 45F, 85F.
- Low cost BOM. Ideally <$25 for everything.
- Loads bitstream from flash
- JTAG should work
- Bootloader on flash that allows programming the rest of the flash over the FT600. Is 128Mbit enough?
  This should allow people to use the board without any extra hardware, as long as the bootloader is flashed.
- Even lower cost alternative:
  * FPGA should work even if the FT600 is unpopulated
  * Oscillator instead of XTAL on the FT600
  * Micro-USB. Will only be used for power then I guess. Cheap and everyone has a cable. Might even work with the FT600.

@kbeckmann

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