i.MX8M HMI Platform Block Diagram v2.2

12V to 5V
(Analog Devices)
LT8642SEV#PBF
→ 2x USB Type A Connector (10W)
→ USB microAB Connector (2.5W)
→ 2x HDMI Connector (<2W)
→ To Exp. Conn. For Mezzanine (5W)
→ CAN Interface

12V To Exp. Conn. For Mezzanine (>7W)

12V
1.65mm DC jack (CUI) PJ-041H
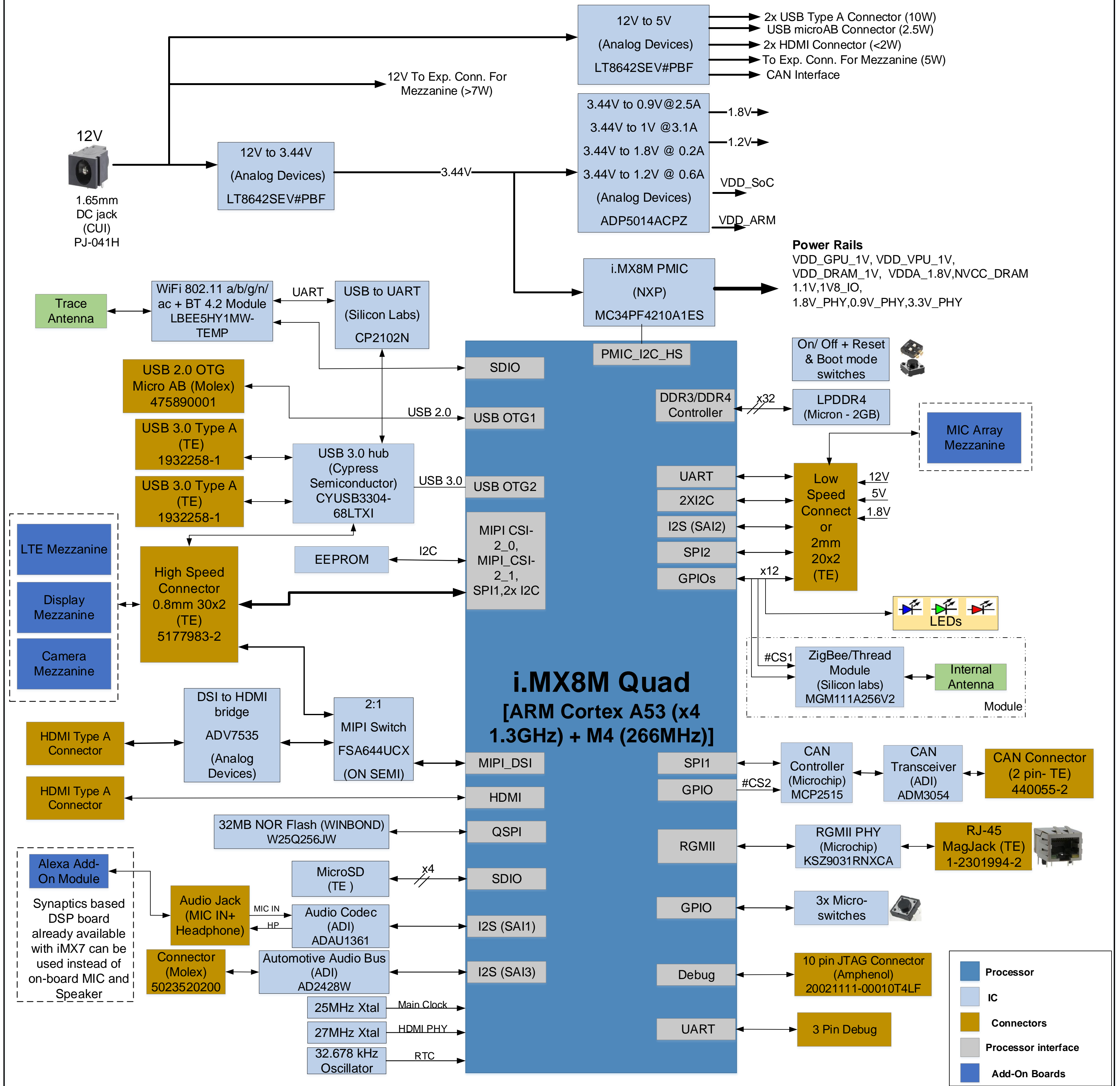
12V to 3.44V
(Analog Devices)
LT8642SEV#PBF

3.44V

3.44V to 0.9V@2.5A
3.44V to 1V @3.1A
3.44V to 1.8V @ 0.2A
3.44V to 1.2V @ 0.6A
(Analog Devices)
ADP5014ACPZ
→ 1.8V
→ 1.2V
→ VDD_SoC
→ VDD_ARM

i.MX8M PMIC
(NXP)
MC34PF4210A1ES

Power Rails
VDD_GPU_1V, VDD_VPU_1V, VDD_DRAM_1V, VDDA_1.8V, NVCC_DRAM 1.1V, 1V8_IO, 1.8V_PHY, 0.9V_PHY, 3.3V_PHY

PMIC_I2C_HS

Trace Antenna

WiFi 802.11 a/b/g/n/ac + BT 4.2 Module
LBEE5HY1MW-TEMP

UART

USB to UART
(Silicon Labs)
CP2102N

On/ Off + Reset & Boot mode switches

DDR3/DDR4 Controller — x32 — LPDDR4 (Micron - 2GB)

MIC Array Mezzanine

USB 2.0 OTG Micro AB (Molex) 475890001

USB 3.0 Type A (TE) 1932258-1

USB 3.0 Type A (TE) 1932258-1

USB 3.0 hub (Cypress Semiconductor) CYUSB3304-68LTXI

SDIO

USB 2.0 — USB OTG1

USB 3.0 — USB OTG2

EEPROM — I2C

MIPI CSI-2_0, MIPI_CSI-2_1, SPI1, 2x I2C

UART
2XI2C
I2S (SAI2)
SPI2
GPIOs — x12

Low Speed Connector 2mm 20x2 (TE)
→ 12V
→ 5V
→ 1.8V

LEDs

#CS1 — ZigBee/Thread Module (Silicon labs) MGM111A256V2 — Internal Antenna
Module

LTE Mezzanine
Display Mezzanine
Camera Mezzanine

High Speed Connector 0.8mm 30x2 (TE) 5177983-2

DSI to HDMI bridge
ADV7535
(Analog Devices)

2:1 MIPI Switch
FSA644UCX
(ON SEMI)

HDMI Type A Connector

HDMI Type A Connector

i.MX8M Quad
[ARM Cortex A53 (x4 1.3GHz) + M4 (266MHz)]

MIPI_DSI
HDMI

SPI1 — CAN Controller (Microchip) MCP2515 — #CS2
GPIO — CAN Transceiver (ADI) ADM3054 — CAN Connector (2 pin- TE) 440055-2

QSPI — 32MB NOR Flash (WINBOND) W25Q256JW

RGMII — RGMII PHY (Microchip) KSZ9031RNXCA — RJ-45 MagJack (TE) 1-2301994-2

GPIO — 3x Micro-switches

Alexa Add-On Module
Synaptics based DSP board already available with iMX7 can be used instead of on-board MIC and Speaker

MicroSD (TE) — x4 — SDIO

Audio Jack (MIC IN+ Headphone)
MIC IN / HP

Audio Codec (ADI) ADAU1361 — I2S (SAI1)

Connector (Molex) 5023520200

Automotive Audio Bus (ADI) AD2428W — I2S (SAI3)

Debug — 10 pin JTAG Connector (Amphenol) 20021111-00010T4LF

25MHz Xtal — Main Clock
27MHz Xtal — HDMI PHY
32.678 kHz Oscillator — RTC

UART — 3 Pin Debug

Legend
Processor
IC
Connectors
Processor interface
Add-On Boards