Future Electronics
Intelligent Solutions
For

IS ImageStream Internet Solutions

http://www.imagestream.com/

Selma, Texas

WiFi AP / Router
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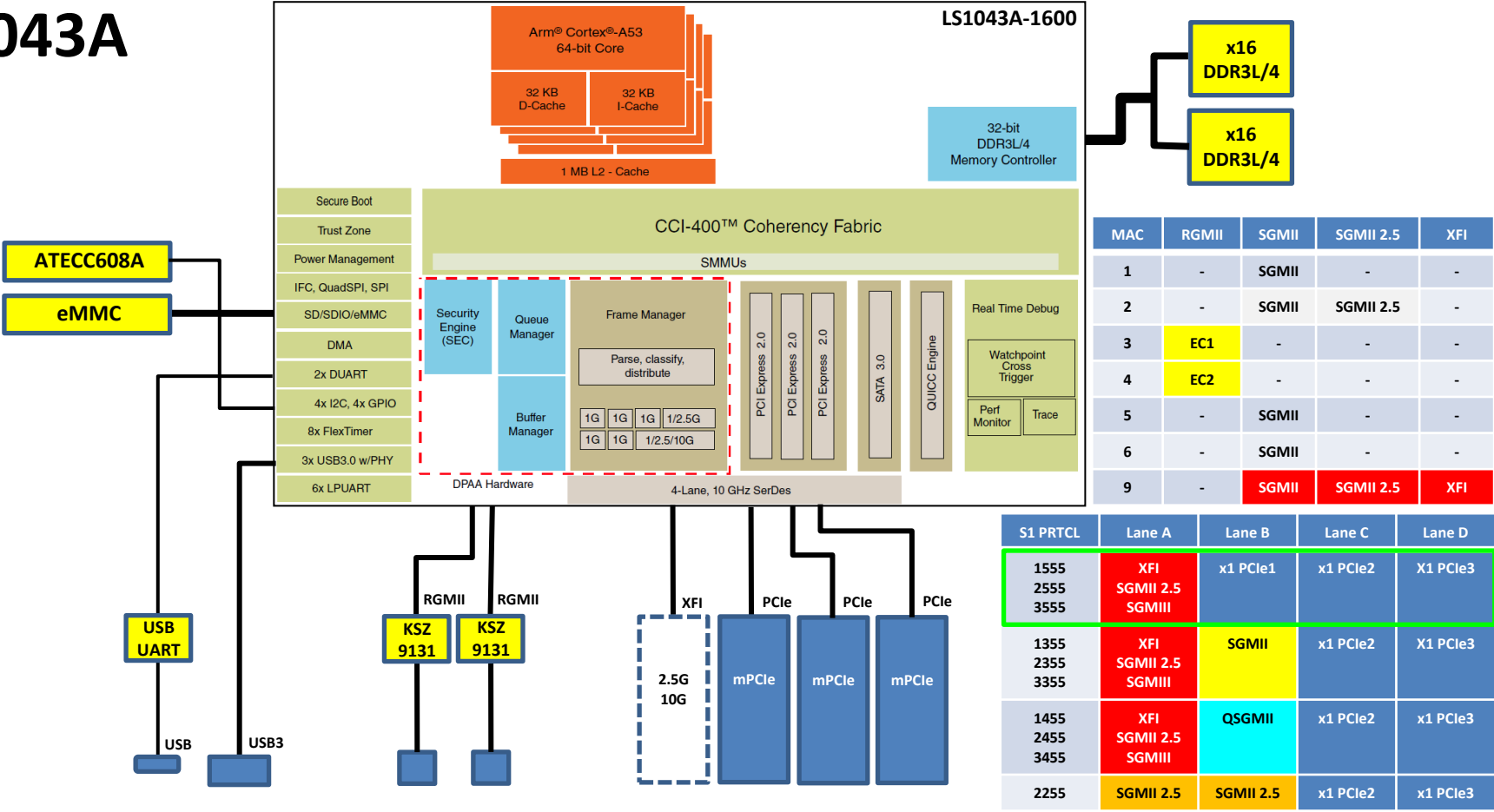
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Requirements

- SFP+
- 2.5G PoE (802.at)
- GigE
- 2 mPCIe to 3 mPCIe
- 1 GB DDR to 2GB
- Unique ID, to generate unique password per device
- WiFI Modules
  - 88w9064
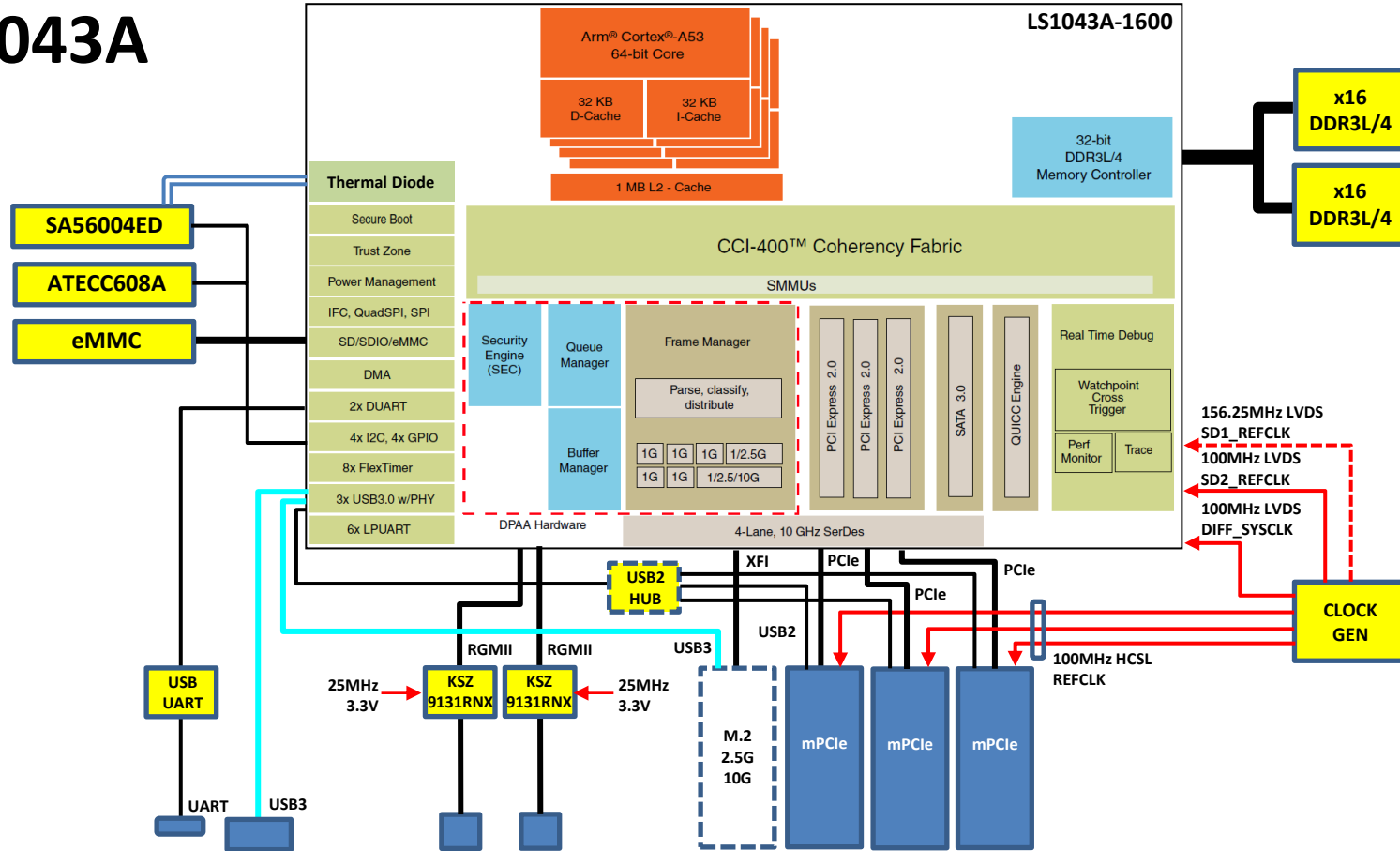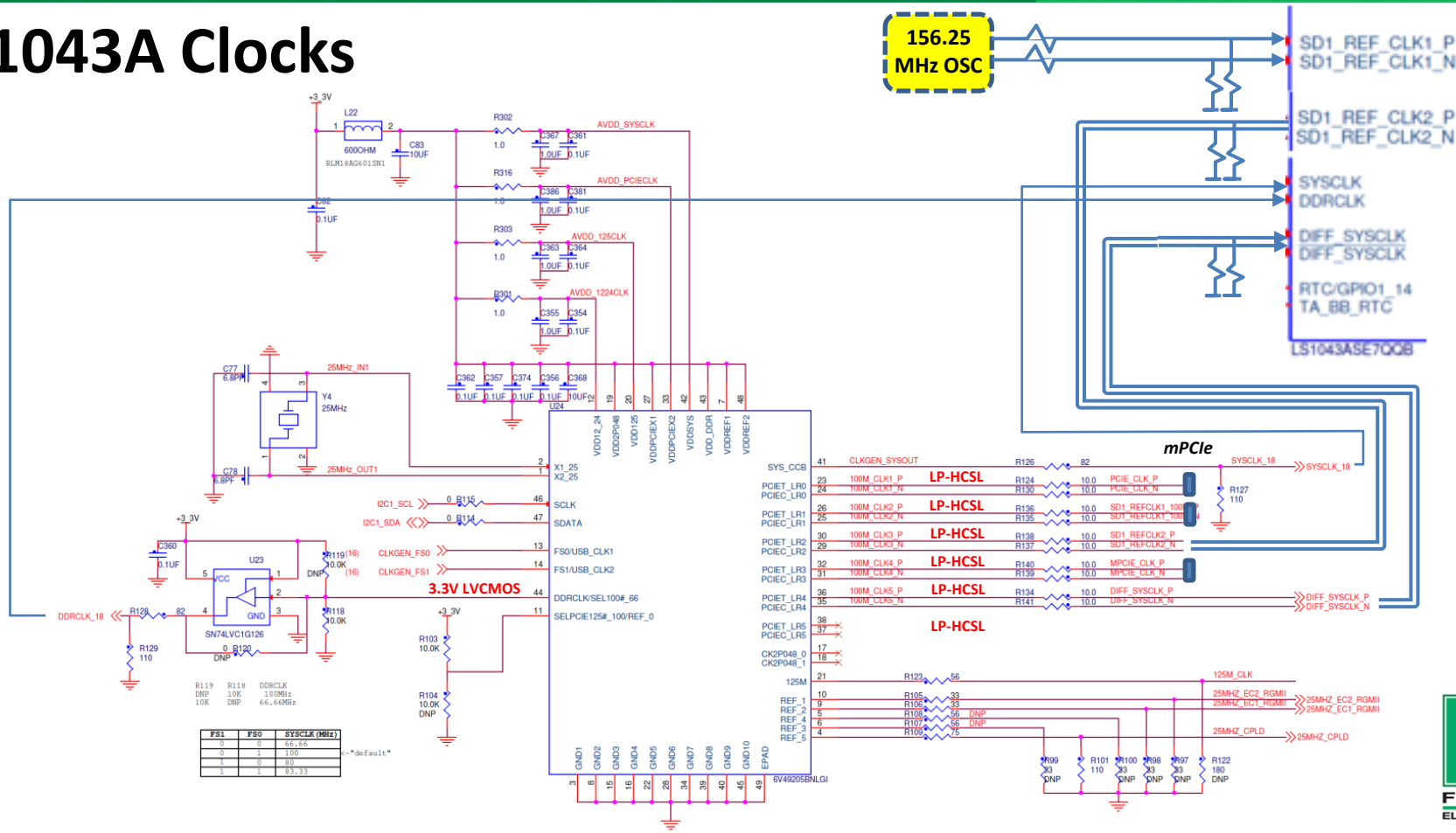 - 88w8964
- OpenWRT
- Open vSwitch

LS1043A

LS1043A-1600

Arm® Cortex®-A53 64-bit Core

| 32 KB D-Cache | 32 KB I-Cache |

1 MB L2 - Cache

CCI-400™ Coherency Fabric

SMMUs

Secure Boot
Trust Zone
Power Management
IFC, QuadSPI, SPI
SD/SDIO/eMMC
DMA
2x DUART
4x I2C, 4x GPIO
8x FlexTimer
3x USB3.0 w/PHY
6x LPUART

Security Engine (SEC)
Queue Manager
Frame Manager
Parse, classify, distribute

| 1G | 1G | 1G | 1/2.5G |
| 1G | 1G | 1/2.5/10G |

Buffer Manager

PCI Express 2.0
PCI Express 2.0
PCI Express 2.0
SATA 3.0
QUICC Engine

Real Time Debug
Watchpoint Cross Trigger
Perf Monitor
Trace

DPAA Hardware

4-Lane, 10 GHz SerDes

32-bit DDR3L/4 Memory Controller

x16 DDR3L/4

x16 DDR3L/4

ATECC608A

eMMC

USB UART

USB

USB3

RGMII   RGMII

KSZ 9131   KSZ 9131

XFI   PCIe   PCIe   PCIe

2.5G 10G

mPCIe   mPCIe   mPCIe

MAC	RGMII	SGMII	SGMII 2.5	XFI
1	-	SGMII	-	-
2	-	SGMII	SGMII 2.5	-
3	EC1	-	-	-
4	EC2	-	-	-
5	-	SGMII	-	-
6	-	SGMII	-	-
9	-	SGMII	SGMII 2.5	XFI

S1 PRTCL	Lane A	Lane B	Lane C	Lane D
1555 2555 3555	XFI SGMII 2.5 SGMIII	x1 PCIe1	x1 PCIe2	X1 PCIe3
1355 2355 3355	XFI SGMII 2.5 SGMIII	SGMII	x1 PCIe2	X1 PCIe3
1455 2455 3455	XFI SGMII 2.5 SGMIII	QSGMII	x1 PCIe2	x1 PCIe3
2255	SGMII 2.5	SGMII 2.5	x1 PCIe2	x1 PCIe3

Design Details

LS1043A

LS1043A-1600

Arm® Cortex®-A53 64-bit Core

32 KB D-Cache | 32 KB I-Cache

1 MB L2 - Cache

32-bit DDR3L/4 Memory Controller

x16 DDR3L/4

x16 DDR3L/4

Thermal Diode

Secure Boot
Trust Zone
Power Management
IFC, QuadSPI, SPI
SD/SDIO/eMMC
DMA
2x DUART
4x I2C, 4x GPIO
8x FlexTimer
3x USB3.0 w/PHY
6x LPUART

SA56004ED
ATECC608A
eMMC

CCI-400™ Coherency Fabric

SMMUs

Security Engine (SEC)

Queue Manager

Frame Manager

Parse, classify, distribute

Buffer Manager

| 1G | 1G | 1G | 1/2.5G |
| 1G | 1G | 1/2.5/10G |

PCI Express 2.0 | PCI Express 2.0 | PCI Express 2.0 | SATA 3.0 | QUICC Engine

Real Time Debug

Watchpoint Cross Trigger

Perf Monitor | Trace

DPAA Hardware

4-Lane, 10 GHz SerDes

156.25MHz LVDS
SD1_REFCLK

100MHz LVDS
SD2_REFCLK

100MHz LVDS
DIFF_SYSCLK

USB2 HUB

XFI | PCIe | PCIe

PCIe | PCIe

USB2

USB3

100MHz HCSL
REFCLK

CLOCK GEN

USB UART

RGMII | RGMII

25MHz 3.3V | KSZ 9131RNX | KSZ 9131RNX | 25MHz 3.3V

M.2 2.5G 10G | mPCIe | mPCIe | mPCIe

UART | USB3

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LS1043A Clocks

MFR	Qty	Devices (all commercial Temp)	Description	Stuffing Option
NXP	1	LS1043ASN7KQB LS1043ASN7MQB LS1043ASN7PQB LS1043ASN7QQB	LS1043A-1000, DDR-1600, (use ASE if crypto rqd) LS1043A-1200, DDR-1600, (use ASE if crypto rqd) LS1043A-1400, DDR-1600, (use ASE if crypto rqd) LS1043A-1600, DDR-1600, (use ASE if crypto rqd)	
Kingston	1	EMMC04G-M627	4GB eMMC	
Alliance Memory Alliance Memory Kingston Kingston --------------------------- Alliance Memory Kingston Samsung	2	AS4C512M16D3LC-12BCN AS4C512M16D3L-12BCN D2516ECBDXGGGB-U B5116ECMDXGGB-U -- AS4C256M16D4-93BCN D2516ACPCXGPH-U K4A8G165WC-BCRC	4Gbit DDR3L (256Mx16)-1600 8Gbit DDR3L (512Mx16)-1600 4Gbit DDR3L (256Mx16)-1600 8Gbit DDR3L (512Mx16)-1600 --- 4Gbit DDR4 (256Mx16)-2400 4Gbit DDR4 (256Mx16)-2400 8Gbit DDR4 (512Mx16)-2400	
Microchip	1	ATECC608A-TFLXTLSU	Secure Element (TrustFlexTLS Provisioned) UDFN	
Microchip	2	KSZ9131RNX	RGMII GigE PHY	
NXP Onsemi	1	SA56004AD ADM1032ARZ	Remote and Local Thermal Monitor (± 1°C)	
FTDI Microchip	1	FT230XQ MCP2200-I/MQ	USB UART	
Microchip	1	USB2513B/M2 USB2514B/M2	3-port USB2 Hub 4-port USB2 Hub	Optional
Renesas/IDT	1	6V49205BNLGI	Clock Generator	
Renesas/IDT	1	XUN515156.250000	156.25MHz HCSL Osc, Pin 1 Enb, 1.8V, 50ppm, 400fs,5x3mm	Optional
	3		mPCIe Socket	
	1		M.2 Socket	Optional

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