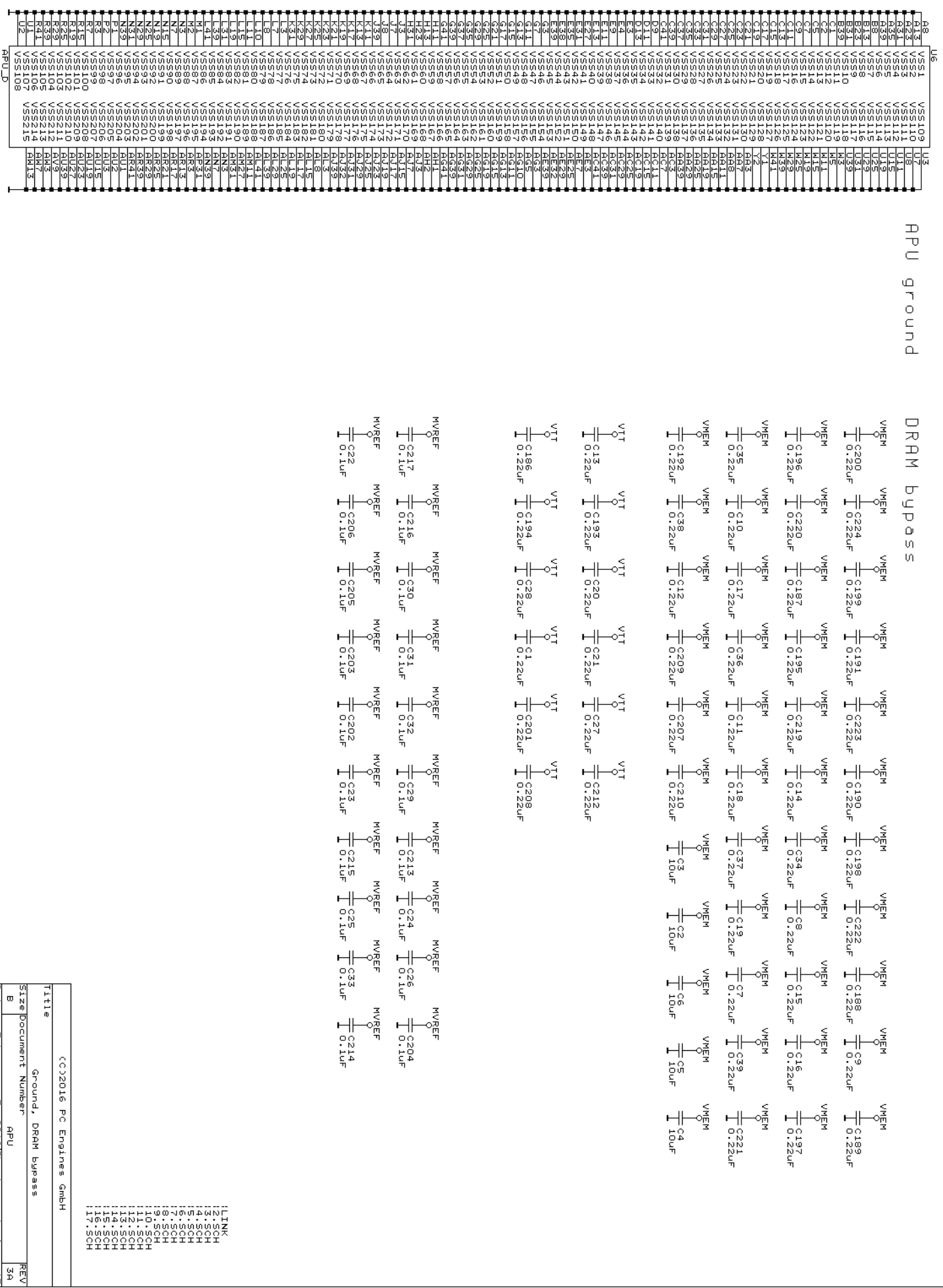


APU ground

DRAM bypass



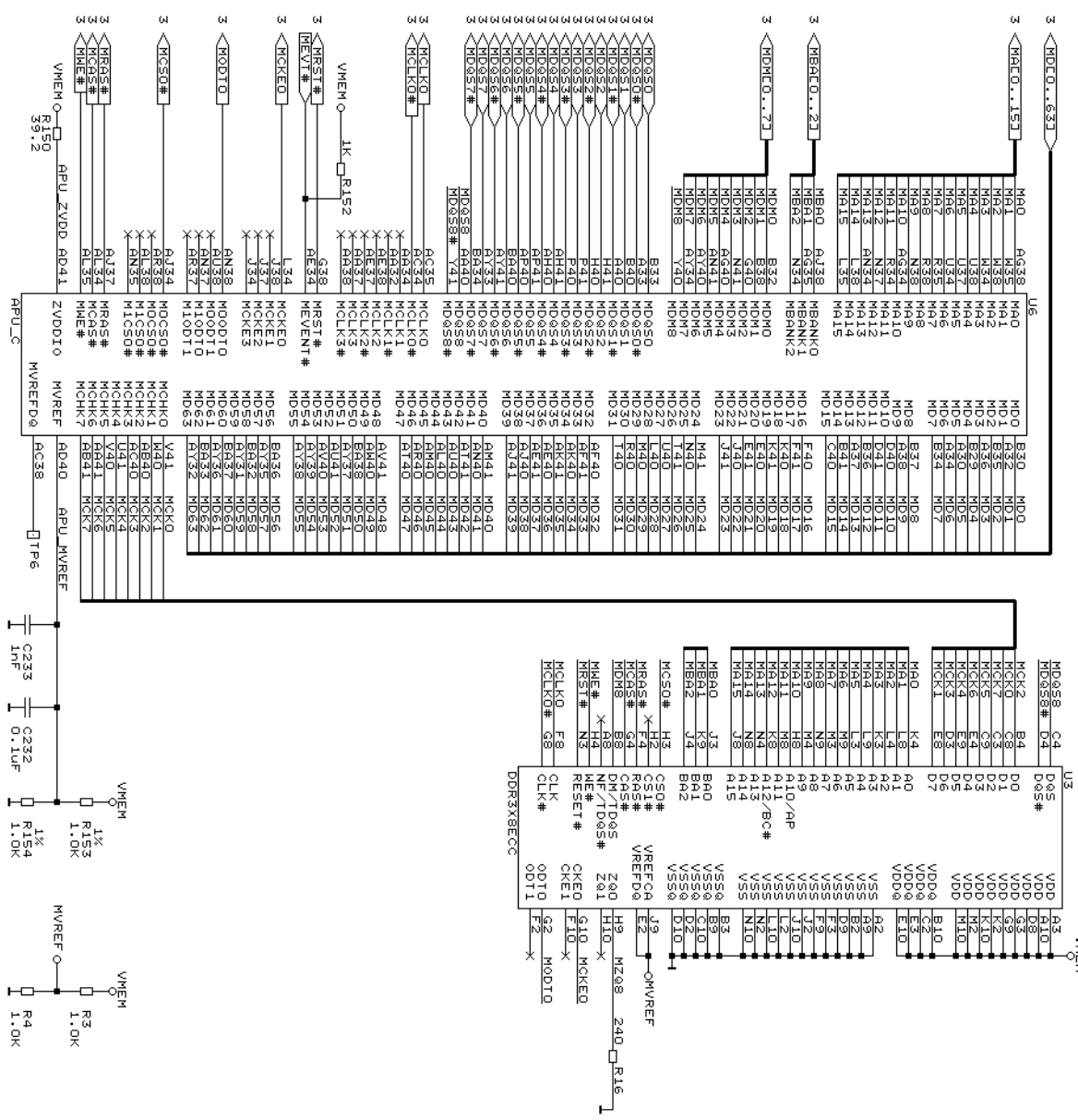
- 17.5SCH
- 15.5SCH
- 14.5SCH
- 12.5SCH
- 11.5SCH
- 10.5SCH
- 9.5SCH
- 8.5SCH
- 5.5SCH
- 3.5SCH
- 2.5SCH
- 1.5SCH
- LNK

Title		Ground, DRAM Bypass	
Size/Document Number		APU	
Date:	February 5, 2016	Sheet	1 of 17
REV	3A		

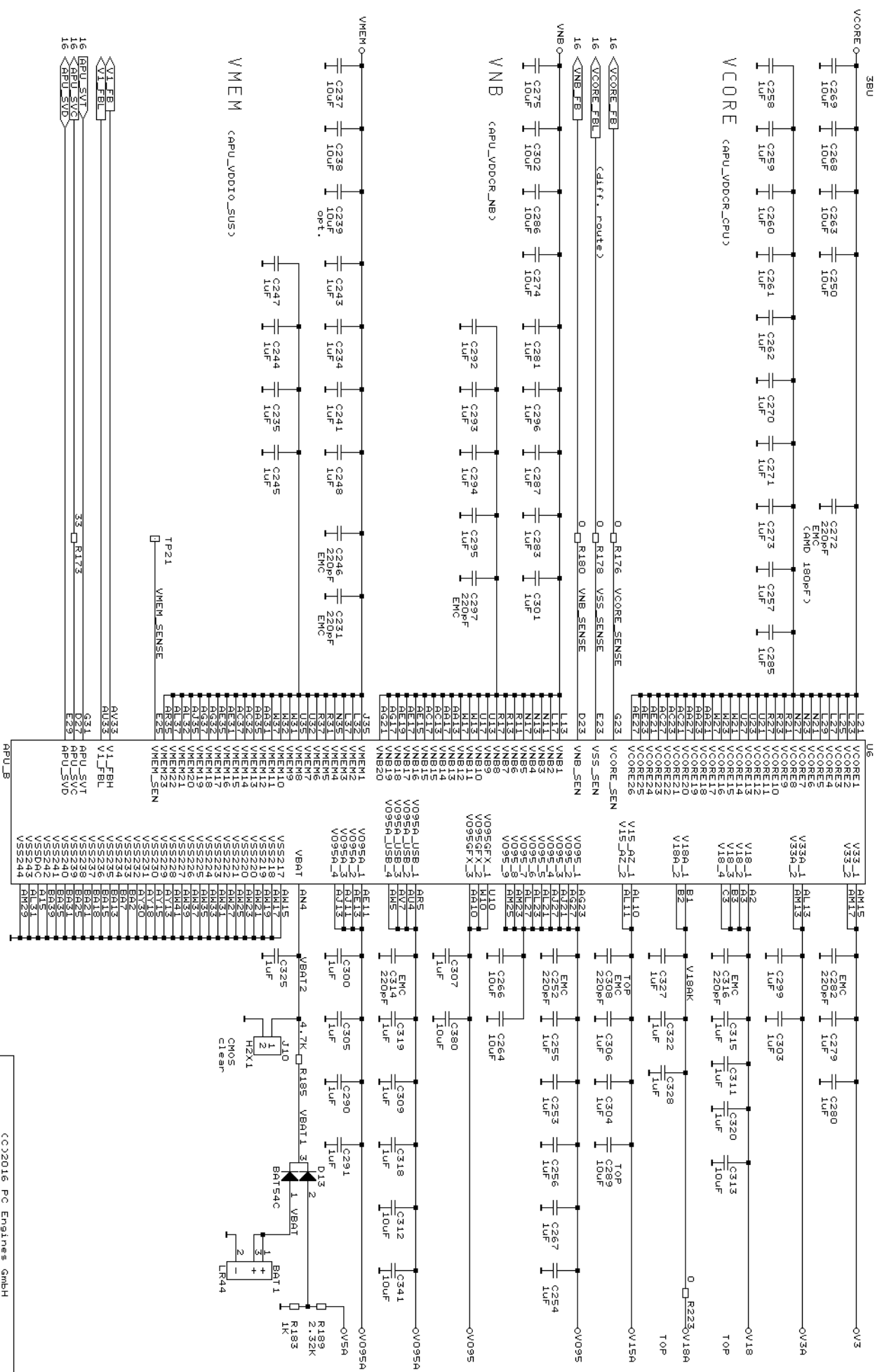
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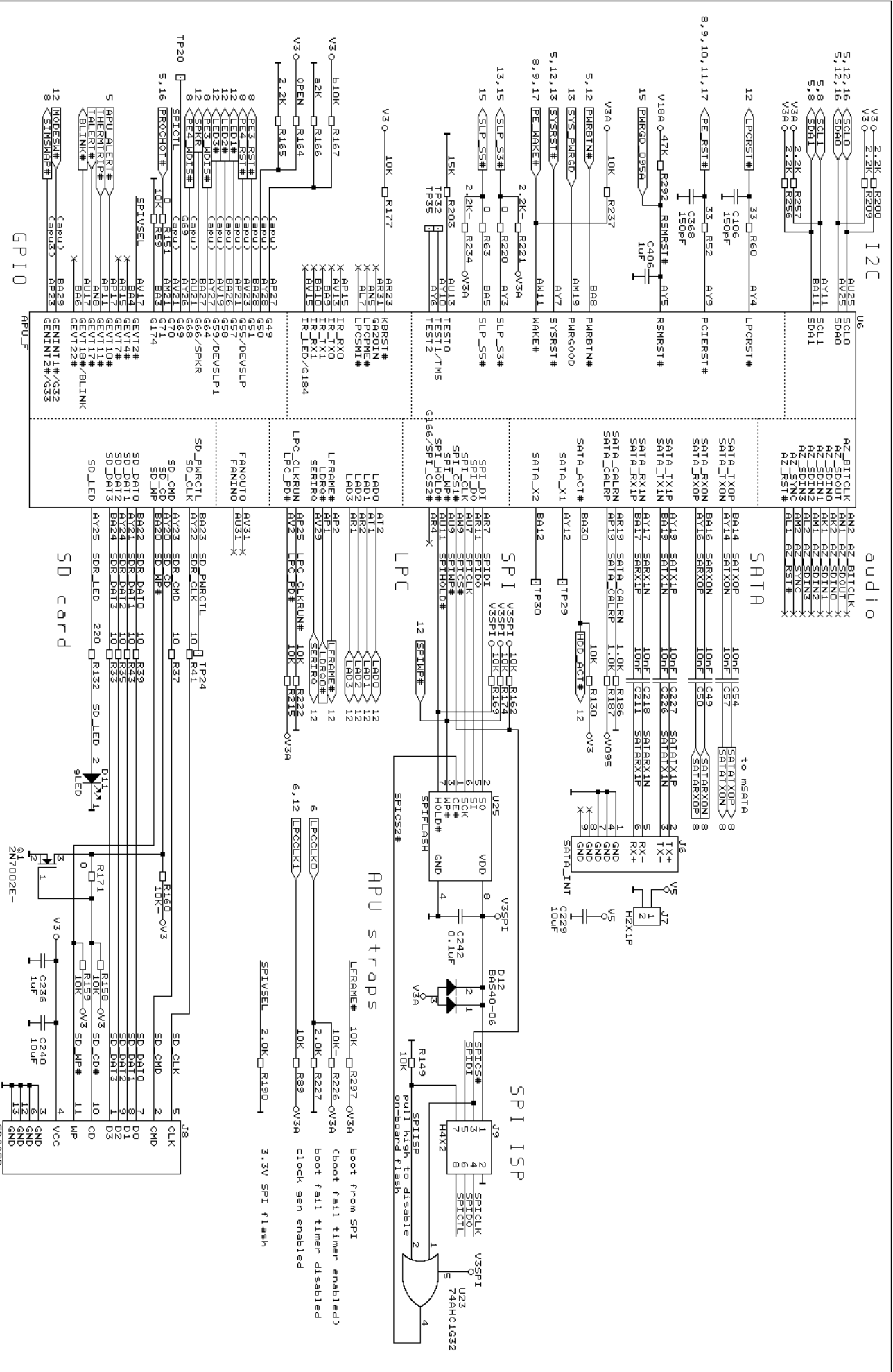
APU DRAM Interface

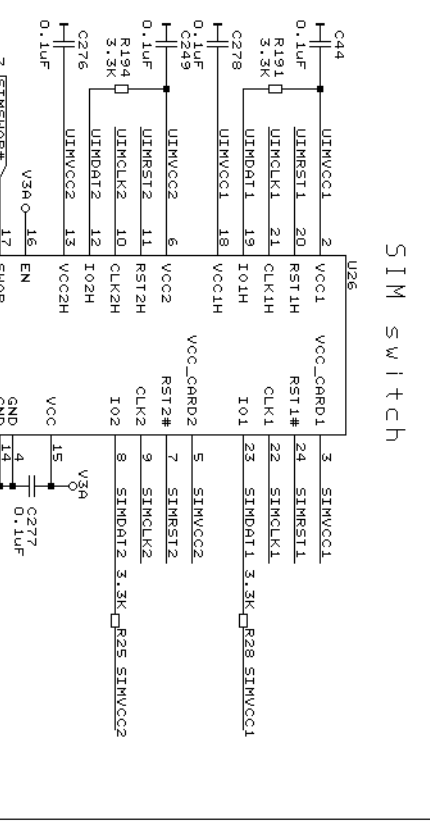
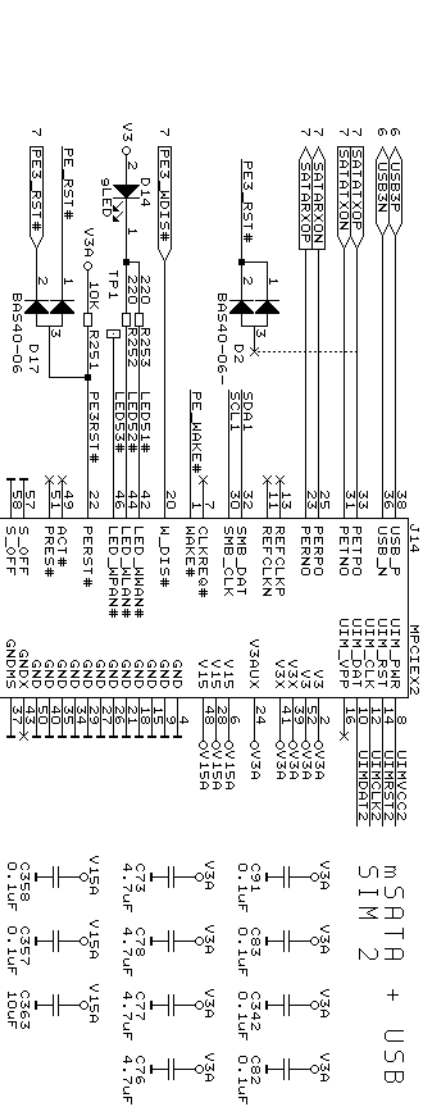
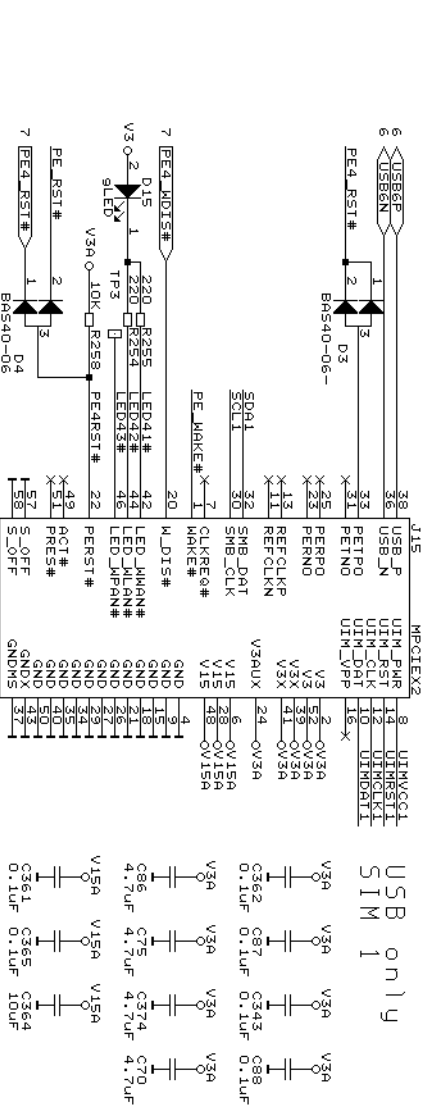
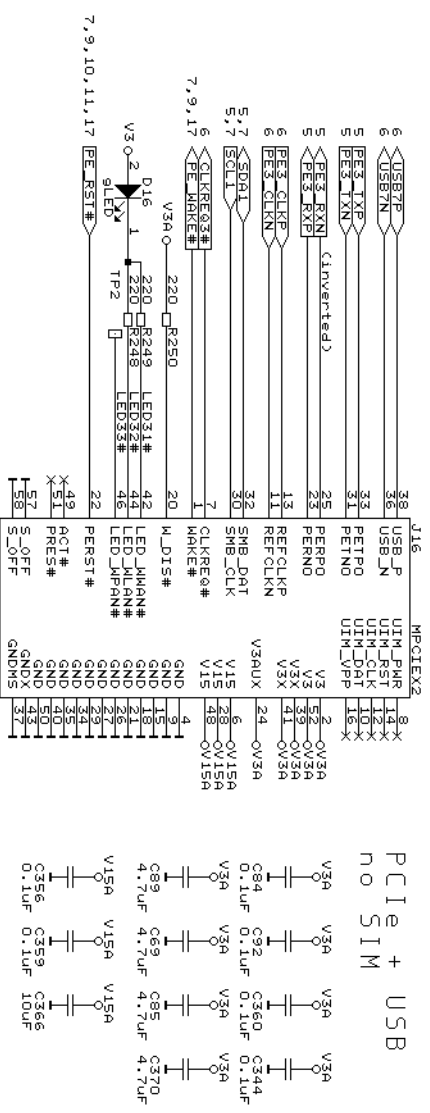
ECC DRAM



APU power







6 CLKREQ1# 10K R155

6 PE1_CLKP 28

6 PE1_CLKN 29

5 PE1_RXB 20

5 PE1_RXN 21

5 PE1_TXP 22

5 PE1_TXN 23

7,8,9,11,17 PE_RST#

V3 O 10K R304

V3 O 10K R305

V3 O 10K R306

V3 O 10K R307

V3 O 10K R308

V3 O 10K R309

V3 O 10K R310

V3 O 10K R311

V3 O 10K R312

V3 O 10K R313

V3 O 10K R314

V3 O 10K R315

V3 O 10K R316

V3 O 10K R317

V3 O 10K R318

V3 O 10K R319

V3 O 10K R320

V3 O 10K R321

V3 O 10K R322

V3 O 10K R323

V3 O 10K R324

V3 O 10K R325

V3 O 10K R326

V3 O 10K R327

V3 O 10K R328

V3 O 10K R329

V3 O 10K R330

V3 O 10K R331

V3 O 10K R332

V3 O 10K R333

V3 O 10K R334

V3 O 10K R335

V3 O 10K R336

V3 O 10K R337

V3 O 10K R338

V3 O 10K R339

V3 O 10K R340

V3 O 10K R341

V3 O 10K R342

V3 O 10K R343

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V3 O 10K R355

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V3 O 10K R357

V3 O 10K R358

V3 O 10K R359

V3 O 10K R360

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V3 O 10K R362

V3 O 10K R363

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V3 O 10K R368

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V3 O 10K R371

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V3 O 10K R407

V3 O 10K R408

V3 O 10K R409

V3 O 10K R410

V3 O 10K R411

V3 O 10K R412

V3 O 10K R413

V3 O 10K R414

V3 O 10K R415

V3 O 10K R416

V3 O 10K R417

V3 O 10K R418

V3 O 10K R419

V3 O 10K R420

V3 O 10K R421

V3 O 10K R422

V3 O 10K R423

V3 O 10K R424

V3 O 10K R425

V3 O 10K R426

V3 O 10K R427

V3 O 10K R428

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V3 O 10K R430

V3 O 10K R431

V3 O 10K R432

V3 O 10K R433

V3 O 10K R434

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V3 O 10K R438

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V3 O 10K R443

V3 O 10K R444

V3 O 10K R445

V3 O 10K R446

V3 O 10K R447

V3 O 10K R448

V3 O 10K R449

V3 O 10K R450

V3 O 10K R451

V3 O 10K R452

V3 O 10K R453

V3 O 10K R454

V3 O 10K R455

V3 O 10K R456

V3 O 10K R457

V3 O 10K R458

V3 O 10K R459

V3 O 10K R460

U35

J26

U14

PE_CLKP

MDI0

MDI1

MDI2

MDI3

MDI4

MDI5

MDI6

MDI7

MDI8

MDI9

PE_CLKN

MDI0

MDI1

MDI2

MDI3

MDI4

MDI5

MDI6

MDI7

MDI8

MDI9

PE_TP

MDI0

MDI1

MDI2

MDI3

MDI4

MDI5

MDI6

MDI7

MDI8

MDI9

PE_TN

MDI0

MDI1

MDI2

MDI3

MDI4

MDI5

MDI6

MDI7

MDI8

MDI9

PE_TN

MDI0

MDI1

MDI2

MDI3

MDI4

MDI5

MDI6

MDI7

MDI8

MDI9

PE_TN

MDI0

MDI1

MDI2

MDI3

MDI4

MDI5

MDI6

MDI7

MDI8

MDI9

PE_TN

MDI0

MDI1

MDI2

MDI3

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MDI6

MDI7

MDI8

MDI9

PE_TN

MDI0

MDI1

MDI2

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MDI4

MDI5

MDI6

MDI7

MDI8

MDI9

PE_TN

MDI0

MDI1

MDI2

MDI3

MDI4

MDI5

MDI6

MDI7

MDI8

MDI9

PE_TN

MDI0

MDI1

MDI2

MDI3

MDI4

MDI5

MDI6

MDI7

MDI8

MDI9

PE_TN

MDI0

MDI1

MDI2

MDI3

MDI4

MDI5

MDI6

MDI7

MDI8

MDI9

PE_TN

MDI0

MDI1

MDI2

MDI3

MDI4

MDI5

MDI6

MDI7

MDI8

MDI9

PE_TN

MDI0

MDI1

MDI2

6 CLKREG2# 10K R170

6 GE2_CLKP 28

6 GE2_CLKN 29

6 GE2_RXP 20

6 GE2_RXN 21

5 GE2_TXP 23

5 GE2_TXN 24

5 PE_RST# 17

5 PE_DEVOFF# 18

3 V3 10K R320

3 GE2_OFC# X18

3 GE2_PG 1

3 GE2_LED0 3

3 GE2_LED1 4

3 V3 10K R330

3 GE2_XT1 46

3 GE2_XT2 45

3 GE2_LED2 5

3 GE2_LED3 6

3 V3 10K R340

3 GE2_SCL 34

3 GE2_SDA 35

3 GE2_LED4 7

3 GE2_LED5 8

3 V3 10K R350

3 GE2_ALT# 35

3 SMBCLK 36

3 SMDATA 37

3 SMDRST# 38

3 V3 10K R360

3 GE2_TOK 19

3 JTAGCLK 19

3 JTAGTMS 20

3 JTAGTDO 21

3 V3 10K R370

3 GE2_NOK 2

3 NCSI_CLK 2

3 NCSI_RXD 3

3 NCSI_TXD 4

3 V3 10K R380

3 GE2_RXD 5

3 NCSI_RXD 5

3 NCSI_TXD 6

3 NCSI_TXD 7

3 V3 10K R390

3 GE2_TXD 6

3 NCSI_TXD 6

3 NCSI_RXD 7

3 NCSI_RXD 8

3 V3 10K R400

3 GE2_TXD 7

3 NCSI_TXD 7

3 NCSI_RXD 8

3 NCSI_RXD 9

3 V3 10K R410

3 GE2_TXD 8

3 NCSI_TXD 8

3 NCSI_RXD 9

3 NCSI_RXD 10

3 V3 10K R420

3 GE2_TXD 9

3 NCSI_TXD 9

3 NCSI_RXD 10

3 NCSI_RXD 11

3 V3 10K R430

3 GE2_TXD 10

3 NCSI_TXD 10

3 NCSI_RXD 11

3 NCSI_RXD 12

3 V3 10K R440

3 GE2_TXD 11

3 NCSI_TXD 11

3 NCSI_RXD 12

3 NCSI_RXD 13

3 V3 10K R450

3 GE2_TXD 12

3 NCSI_TXD 12

3 NCSI_RXD 13

3 NCSI_RXD 14

3 V3 10K R460

3 GE2_TXD 13

3 NCSI_TXD 13

3 NCSI_RXD 14

3 NCSI_RXD 15

3 V3 10K R470

3 GE2_TXD 14

3 NCSI_TXD 14

3 NCSI_RXD 15

3 NCSI_RXD 16

3 V3 10K R480

3 GE2_TXD 15

3 NCSI_TXD 15

3 NCSI_RXD 16

3 NCSI_RXD 17

3 V3 10K R490

3 GE2_TXD 16

3 NCSI_TXD 16

3 NCSI_RXD 17

3 NCSI_RXD 18

3 V3 10K R500

3 GE2_TXD 17

3 NCSI_TXD 17

3 NCSI_RXD 18

3 NCSI_RXD 19

3 V3 10K R510

3 GE2_TXD 18

3 NCSI_TXD 18

3 NCSI_RXD 19

3 NCSI_RXD 20

3 V3 10K R520

3 GE2_TXD 19

3 NCSI_TXD 19

3 NCSI_RXD 20

3 NCSI_RXD 21

3 V3 10K R530

3 GE2_TXD 20

3 NCSI_TXD 20

3 NCSI_RXD 21

3 NCSI_RXD 22

3 V3 10K R540

3 GE2_TXD 21

3 NCSI_TXD 21

3 NCSI_RXD 22

3 NCSI_RXD 23

3 V3 10K R550

3 GE2_TXD 22

3 NCSI_TXD 22

3 NCSI_RXD 23

3 NCSI_RXD 24

3 V3 10K R560

3 GE2_TXD 23

3 NCSI_TXD 23

3 NCSI_RXD 24

3 NCSI_RXD 25

3 V3 10K R570

3 GE2_TXD 24

3 NCSI_TXD 24

3 NCSI_RXD 25

3 NCSI_RXD 26

3 V3 10K R580

3 GE2_TXD 25

3 NCSI_TXD 25

3 NCSI_RXD 26

3 NCSI_RXD 27

3 V3 10K R590

3 GE2_TXD 26

3 NCSI_TXD 26

3 NCSI_RXD 27

3 NCSI_RXD 28

3 V3 10K R600

3 GE2_TXD 27

3 NCSI_TXD 27

3 NCSI_RXD 28

3 NCSI_RXD 29

3 V3 10K R610

3 GE2_TXD 28

3 NCSI_TXD 28

3 NCSI_RXD 29

3 NCSI_RXD 30

3 V3 10K R620

3 GE2_TXD 29

3 NCSI_TXD 29

3 NCSI_RXD 30

3 NCSI_RXD 31

3 V3 10K R630

3 GE2_TXD 30

3 NCSI_TXD 30

3 NCSI_RXD 31

3 NCSI_RXD 32

3 V3 10K R640

3 GE2_TXD 31

3 NCSI_TXD 31

3 NCSI_RXD 32

3 NCSI_RXD 33

3 V3 10K R650

3 GE2_TXD 32

3 NCSI_TXD 32

3 NCSI_RXD 33

3 NCSI_RXD 34

3 V3 10K R660

3 GE2_TXD 33

3 NCSI_TXD 33

3 NCSI_RXD 34

3 NCSI_RXD 35

3 V3 10K R670

3 GE2_TXD 34

3 NCSI_TXD 34

3 NCSI_RXD 35

3 NCSI_RXD 36

3 V3 10K R680

3 GE2_TXD 35

3 NCSI_TXD 35

3 NCSI_RXD 36

3 NCSI_RXD 37

3 V3 10K R690

3 GE2_TXD 36

3 NCSI_TXD 36

3 NCSI_RXD 37

3 NCSI_RXD 38

3 V3 10K R700

3 GE2_TXD 37

3 NCSI_TXD 37

3 NCSI_RXD 38

3 NCSI_RXD 39

3 V3 10K R710

3 GE2_TXD 38

3 NCSI_TXD 38

3 NCSI_RXD 39

3 NCSI_RXD 40

3 V3 10K R720

3 GE2_TXD 39

3 NCSI_TXD 39

3 NCSI_RXD 40

3 NCSI_RXD 41

3 V3 10K R730

3 GE2_TXD 40

3 NCSI_TXD 40

3 NCSI_RXD 41

3 NCSI_RXD 42

3 V3 10K R740

3 GE2_TXD 41

3 NCSI_TXD 41

3 NCSI_RXD 42

3 NCSI_RXD 43

3 V3 10K R750

3 GE2_TXD 42

3 NCSI_TXD 42

3 NCSI_RXD 43

3 NCSI_RXD 44

U54

J25

U16

PE_CLKP

MDI0

MDI1

MDI2

MDI3

PE_RST#

DEV0FF#

PE_CLKN

MDI0

MDI1

MDI2

MDI3

PE_RST#

DEV0FF#

PE_TN

MDI0

MDI1

MDI2

MDI3

PE_RST#

DEV0FF#

PE_TN

MDI0

MDI1

MDI2

MDI3

PE_RST#

DEV0FF#

PE_TN

MDI0

MDI1

MDI2

MDI3

PE_RST#

DEV0FF#

PE_TN

MDI0

MDI1

MDI2

MDI3

PE_RST#

DEV0FF#

PE_TN

MDI0

MDI1

MDI2

MDI3

PE_RST#

DEV0FF#

PE_TN

MDI0

MDI1

MDI2

MDI3

PE_RST#

DEV0FF#

PE_TN

MDI0

MDI1

MDI2

MDI3

PE_RST#

DEV0FF#

PE_TN

MDI0

MDI1

MDI2

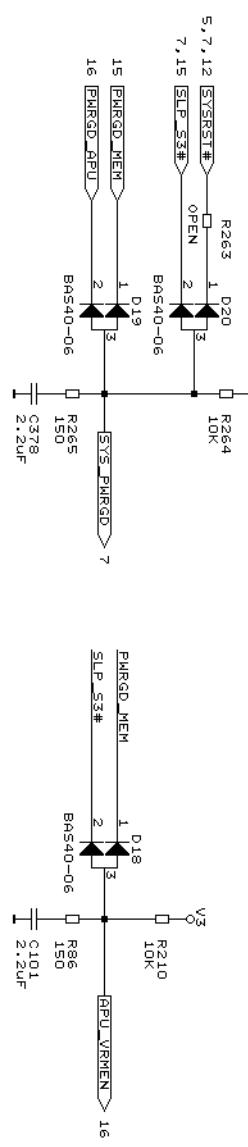
MDI3

PE_RST#

DEV0FF#

PE_TN

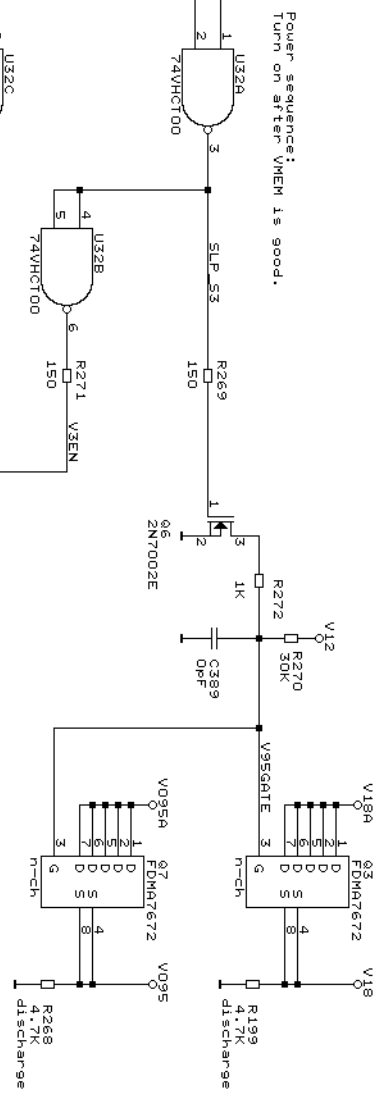
Power good v18a



VRM test points

V5A0	TP58	V5O	TP45
V3A0	TP44	V3O	TP43
V18A0	TP37	V18O	TP36
V15A0	TP40	V1T0	TP31
VMEM0	TP34	V095A0	TP41
V095A0	TP42	VNB0	TP39
VCORE0	TP38		

Power switch

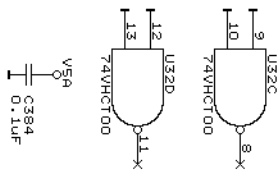


0.95V

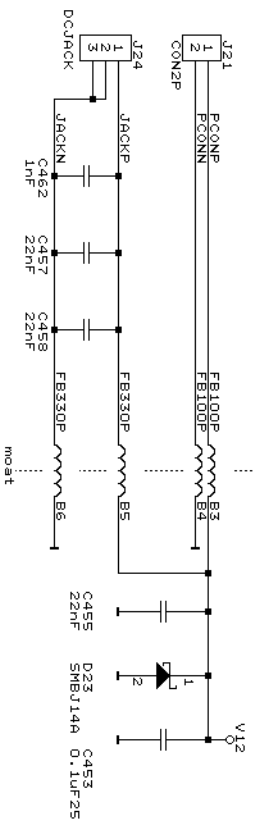
3.3V

5V

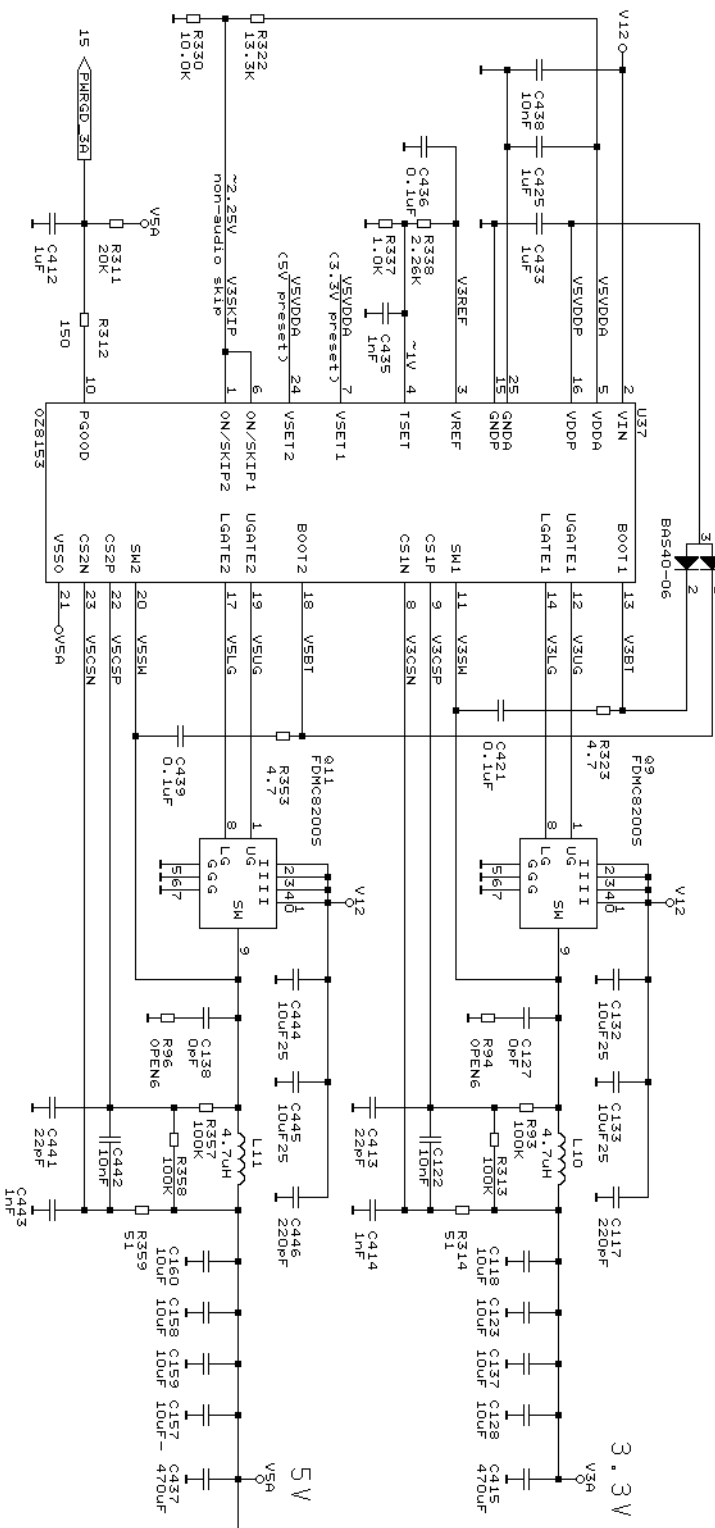
Power sequence:
Turn on after VMEM is good.



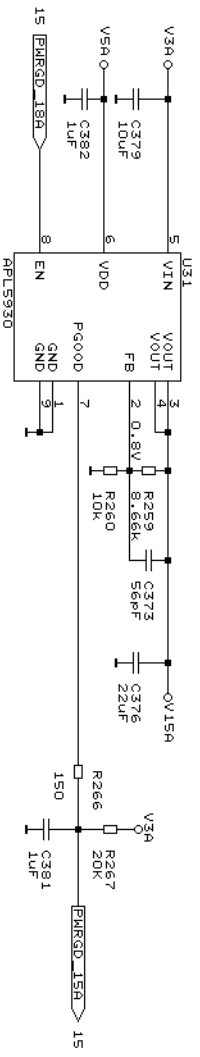
Power input +12V



3.3V and 5V converter



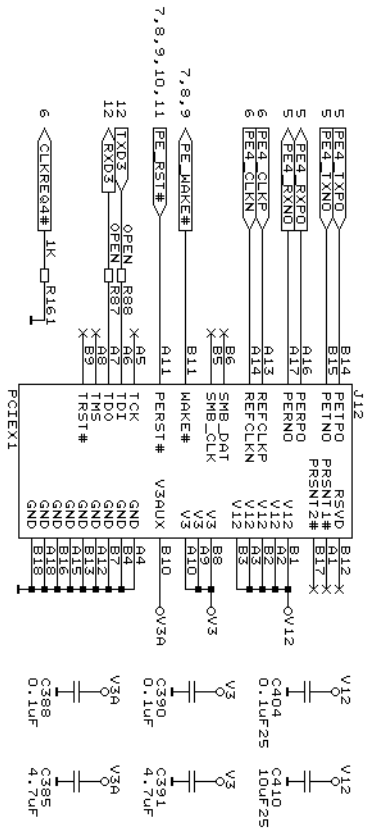
3.3V -> 1.5V LDO (0.5A)



Title		power In, 3.3V, 5V, 1.5V	
Size/Document Number		APU	
Date: February 5, 2016		Sheet	14 of 17

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PCIe x1 expansion



©2016 PC Engines GmbH	
Title	PCIe x1
Size	Document Number
B	APU
Date:	March 8, 2016
Sheet	17 of 17
REV	3A