

- SH01 - TITLE PAGE
- SH02 - NOTES
- SH03 - SoC MEM VIP CAM DIS SYS
- SH04 - SoC CNTVY
- SH05 - SoC DDR
- SH06 - SoC ANA PWR
- SH07 - SoC DIG PWR
- SH08 - DDR3 MEMORY BANK 1
- SH09 - MUX A/C QSPI/EMMC/GPMX
- SH10 - MUX B VOUT3/GPMC
- SH11 - MUX E VIN2
- SH12 - MUX H/J/K/L MCASP/VIN6A
- SH13 - MEM SPI/NAND/NOR
- SH14 - MEM eMMC/SD CARD
- SH15 - USB VBUS/CONNECTORS
- SH16 - USB-UART/JTAG
- SH17 - AIC3106
- SH18 - SERDES CLK/PCIE/MLB CONN
- SH19 - LCD/HDMI CONNECTORS
- SH20 - FPD LINK
- SH21 - CAMERA IF
- SH22 - I2C EXP/ EEPROM/TEMP
- SH23 - COM8
- SH24 - ETHERNET PORT0
- SH25 - ETHERNET PORT1
- SH26 - CAN/EXP CONNECTORS
- SH27 - POWER LM5140
- SH28 - PMIC
- SH29 - POWER MONITOR 1
- SH30 - DARA AND AUTOMATION

REVISION STATUS OF SHEETS												
REV												
SH											DWN	DATE
											J.A.C.	02/05/2016
REV	C	C	A	A1	A	C	C	C2	C	C2		DATE
											T.W.K.	02/05/2016
SH	21	22	23	24	25	26	27	28	29	30		ENGR
											J.A.C.	02/05/2016
REV	A	A	A	b	A	A	A	A	A	A		ENGR-MGR
											J.A.C.	02/05/2016
SH	11	12	13	14	15	16	17	18	19	20		QA
											C.M.D.	02/05/2016
REV	D	D	D	D	D	D	D	B	A	A	NEXT ASSY	DATE
											USED ON	J.A.C.
SH	1	2	3	4	5	6	7	8	9	10	APPLICATION	DATE
												RLSE
												J.A.C.
												02/05/2016

TEXAS INSTRUMENTS INCORPORATED

Title: "DRA71x/DRA79x/TDA2E-17/AM570x EVM CPU Board"

Page Contents: TITLE PAGE

Size: B

DOC NO: 518202

REV: D

Date: Friday, September 08, 2017

Sheet 1 of 30

ECN Number	518200-E002			
Date Requested	10/20/2016			
Requester	Robert E.			
Approvals	Tony C.			
Assembly Number	518200-0001			
Current Assembly Rev	B			
New Assembly Rev	C			
Date Implemented	10/24/2016			
Implentation notes				
				EEPROM will bump to Rev A.2
Item#	Init Date	Priority	Status	Description
				ASSY, PWB, LOGIC Rev B TO C
DR13				Add silkscreen for JP1
				Pin 1 - CANH
				Pin 2 - CANL
DR14				NA
DR15				SHEET 2:
				Change CDCEL925, U114 power raille to VPO_L3_1V8
				SHEET 28:
				U43 From 104715-0001R-TI to 104715-0002R-TI
				Create new part # 104715-0002R-TI for updated OTP
				U42 From 104714-0135R-TI to 104714-0136R-TI
				Create new part # 104714-0136R-TI for updated OTP
				Sheet 29
				Change C528 From 102963-0101R 10uF To 104448-0220R 2.2uF
DR16				Update J6 Entry symobl to v.44
DR17				Remove the Lead Free and replace with RoHS Exempt
DR18				SHEET 21
				Add EVM_12V to P10 pins 1,3
				Add CSI2_GPIO_PWMA to pin 6
				Add CSI2_GPIO_PWMB to pin 8
				SHEET 26
				Add R564, R565 R0201-NOPOP
				Map H_MMC3_D4 to EHRPWM3A
				Map H_MMC3_D5 to EHRPWM3B
DR19				SHEET 3: Change VPP to LDO at 2V vs FET
				Delete Q6
				Add U133 - 104954-0001R
				Add R562 - 102145-3163R, 31.6k 1%
				Add R563 - 102145-4703R, 47K 1%
DR20				EEPROM will bump to Rev A.2
DR21				SHEET 27: Add bleed circuit for 3v3 rail
				Add Q6 - 102437-0001R
				Add Q6 - 102159-0001R
				Add R826 - 100688-3650R
				Add R827 - 101370-1003R

REV C1: ADD ERRATA SHEET 31

REV C2:
UPDATE LP87xx PART NUMBERS FOR CORRECT OTP.
UPDATE AUTOMATION POWER CONTROL NOTE

REV D:
UPDATE SOC SYMBOL TO v1.2
R562 From 102145-3163R to 102145-2323R (31.6K to 23.2K for 1.8V instead of 2.0V on VPP)
ENCORPORATE ERRATA FOR GPIO6_16/GPIO6_14 SIGNAL SWAP
UPDATE SD CARD FOOTPRINT FOR NON-EOL PART

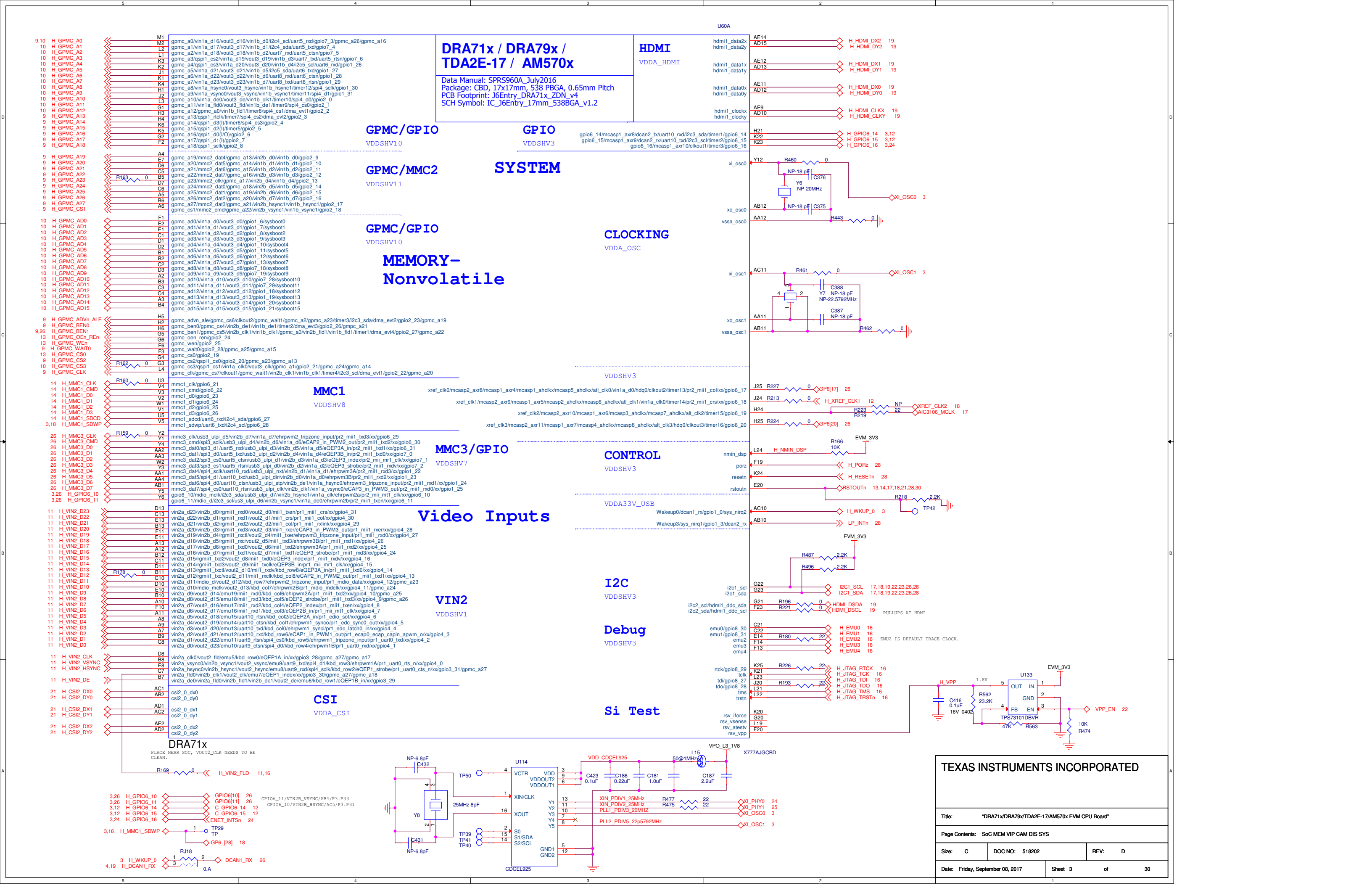
TEXAS INSTRUMENTS INCORPORATED

Title: "DRA71x/DRA79x/TDA2E-17/AM570x EVM CPU Board"

Page Contents: NOTES

Size: C DOC NO: 518202 REV: D

Date: Friday, September 08, 2017 Sheet 2 of 30





Title: "DRA71x/DRA79x/TDA2E-17/AM570x EVM CPU Board"

Page Contents: SoC CNTV

Size:

DOC NO: 518202

REV: D

Date: Friday, September 08, 2017

Sheet 4

of 30



DRA71x / DRA79x /
TDA2E-17 / AM570x

Data Manual: SPRS960A_July2016

Package: CBD, 17x17mm, 538 PBGA, 0.65mm Pitch

PCB Footprint: J6Entry_DRA71x_ZDN_v4

SCH Symbol: IC_J6Entry_17mm_538BGA_v1.2

MEMORY-
Volatile, DDR3

EMIF1

VDDS_DDR1

DRA71x X777AJGCB

TEXAS INSTRUMENTS INCORPORATED

Title: "DRA71x/DRA79x/TDA2E-17/AM570x EVM CPU Board"

Page Contents: SoC DDR

Size: C

DOC NO: 518202

REV: D

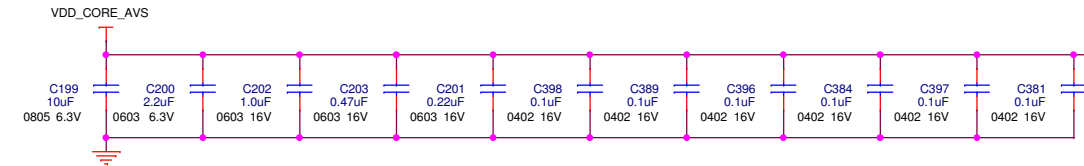
Date: Friday, September 08, 2017

Sheet 5 of 30

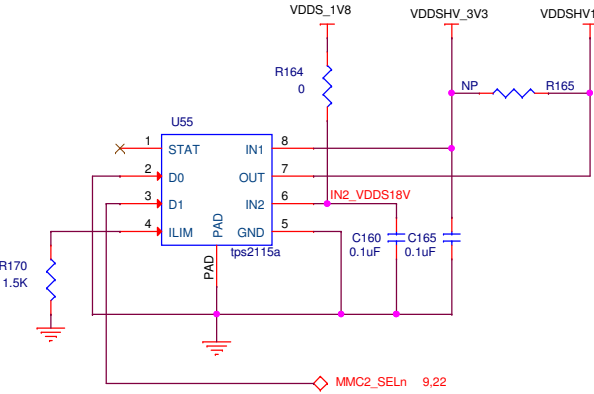
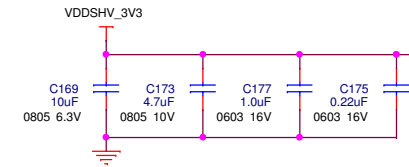
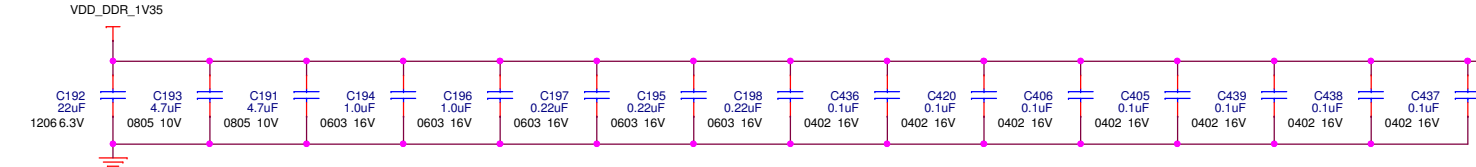
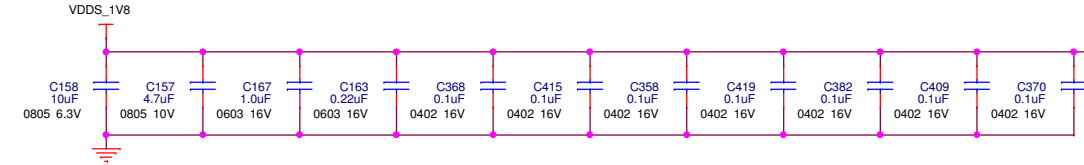
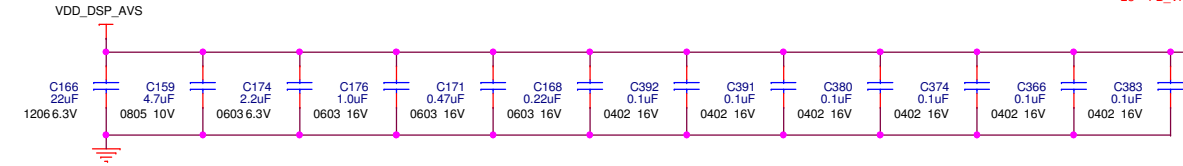


Date: Friday, September 08, 2017 Sheet 6 of 30

Route the feedback connections as 4-8mil trace widths for remote sensing voltages only (not current carrying) and connected as close as possible to SoC power balls or Dcaps located very close to power ball (point of load).



PL-0201 IS A 0201 PLANE LINK.



D1=1, IN1 NOR BOOT
D1=0, IN2 eMMC BOOT

BOOT SWITCHES DEFAULT AS PULLUPS. SWITCH
CLOSED IS PULL DOWN TO SELECT FUNCTION.

DRA71x / DRA79x / TDA2E-17 / AM570x

Data Manual: SPRS960A_July2016
Package: CBD, 17x17mm, 538 PBGA, 0.65mm Pitch
PCB Footprint: J6Entry_DRA71x_ZDN_v4
SCH Symbol: IC_J6Entry_17mm_538BGA_v1.2

POWER

DIGITAL SUPPLIES & GNDS

J15
J16
J18
K12
K18
L12
L17
M13
M15
M17
N11
N13
N15
N18
P10
P12
P14
P16
P18
R10
R12
R14
R16
R17
T19
T11
T13
T15
T17
U9
U11
U13
U15
U18
V10
V12
V14
V16
V18
W10
W12
W14
W16

H9
H11
H13
J9
J11
J13

G11
H20
W7
Y18

P7
R7

P20
Y19
AA19

T19
T20
V20
W17
W18
W20

G9
G10

G15
G17
H15
H17
J19
K19

M19
N19

U7
U8

N8
P8

M7
N7

J7
J8
K8

F7
G7
H7

vss_1
vss_2
vss_3
vss_4
vss_5
vss_6
vss_7
vss_8
vss_9
vss_10
vss_11
vss_12
vss_13
vss_14
vss_15
vss_16
vss_17
vss_18
vss_19
vss_20
vss_21
vss_22
vss_23
vss_24
vss_25
vss_26
vss_27
vss_28
vss_29
vss_30
vss_31
vss_32
vss_33
vss_34
vss_35
vss_36
vss_37
vss_38
vss_39
vss_40
vss_41
vss_42
vss_43
vss_44
vss_45
vss_46
vss_47
vss_48
vss_49
vss_50
vss_51
vss_52
vss_53
vss_54
vss_55
vss_56
vss_57
vss_58
vss_59
vss_60
vss_61
vss_62
vss_63
vss_64
vss_65
vss_66
vss_67
vss_68
vss_69
vss_70
vss_71
vss_72
vss_73
vss_74
vss_75
vss_76
vss_77
vss_78
vss_79
vss_80
vss_81
vss_82
vss_83
vss_84
vss_85
vss_86

A1
A25
G8
G13
G16
H8
H10
H12
H14
H16
H18
H19
J10
J12
J14
J17
K9
K11
K13
K15
K17
L8
L11
L13
L15
L18
AA13
M8
M9
M12
M14
M16
M18
M20
N12
N14
N16
N17
N20
P9
P11
P13
P15
P17
P19
R8
R9
R11
R13
R15
R18
R19
T8
T10
T12
T14
T16
T18
U10
U12
U14
U16
U17
U19
V8
V9
V11
V13
V15
V17
V19
W9
W19
Y7
Y14
Y16
Y17
AA7
AA8
AA9
AB8
AC13
AE1
AE15
AE25
AA15

DRA71x

X777AJGCB

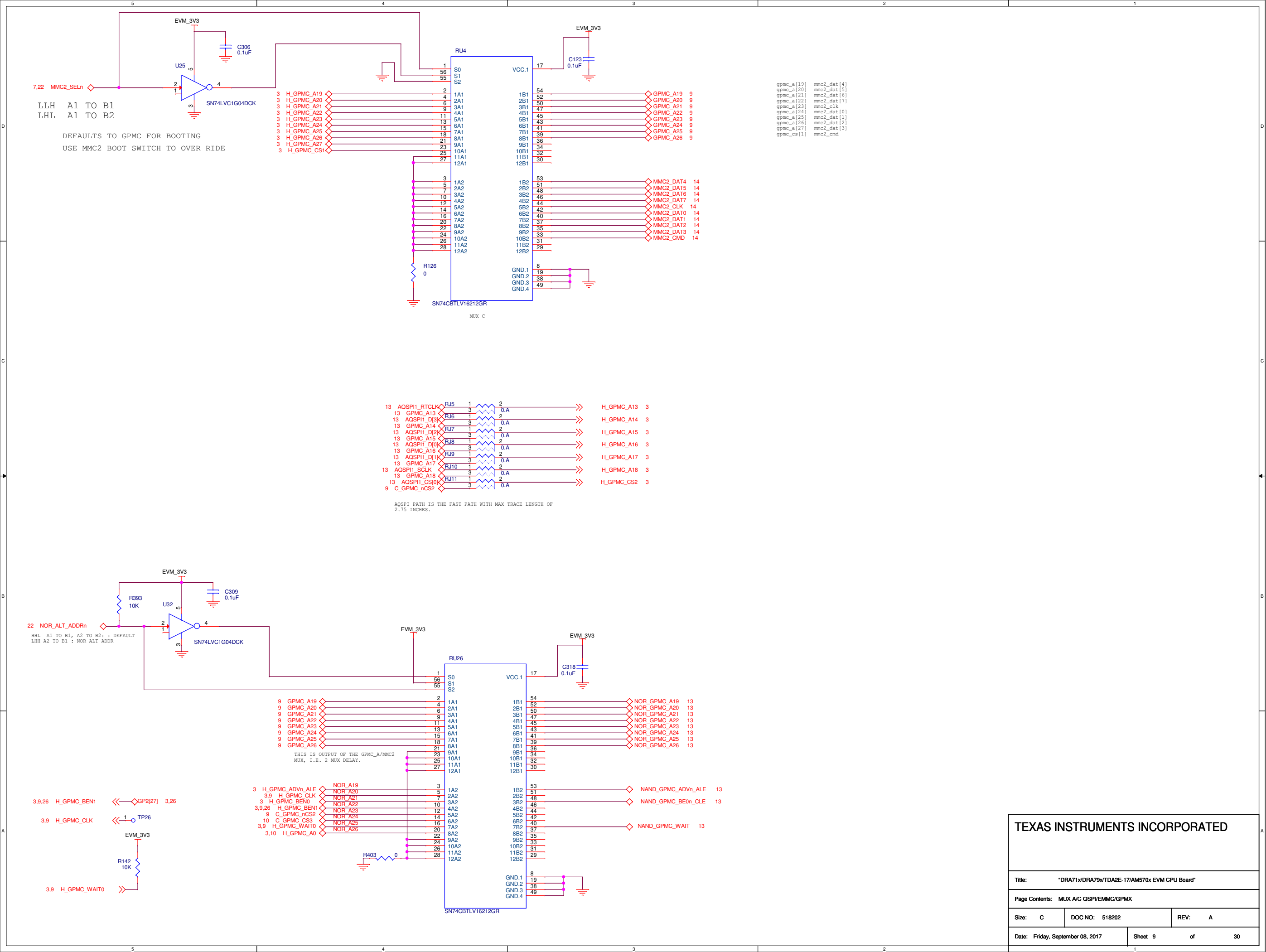
TEXAS INSTRUMENTS INCORPORATED

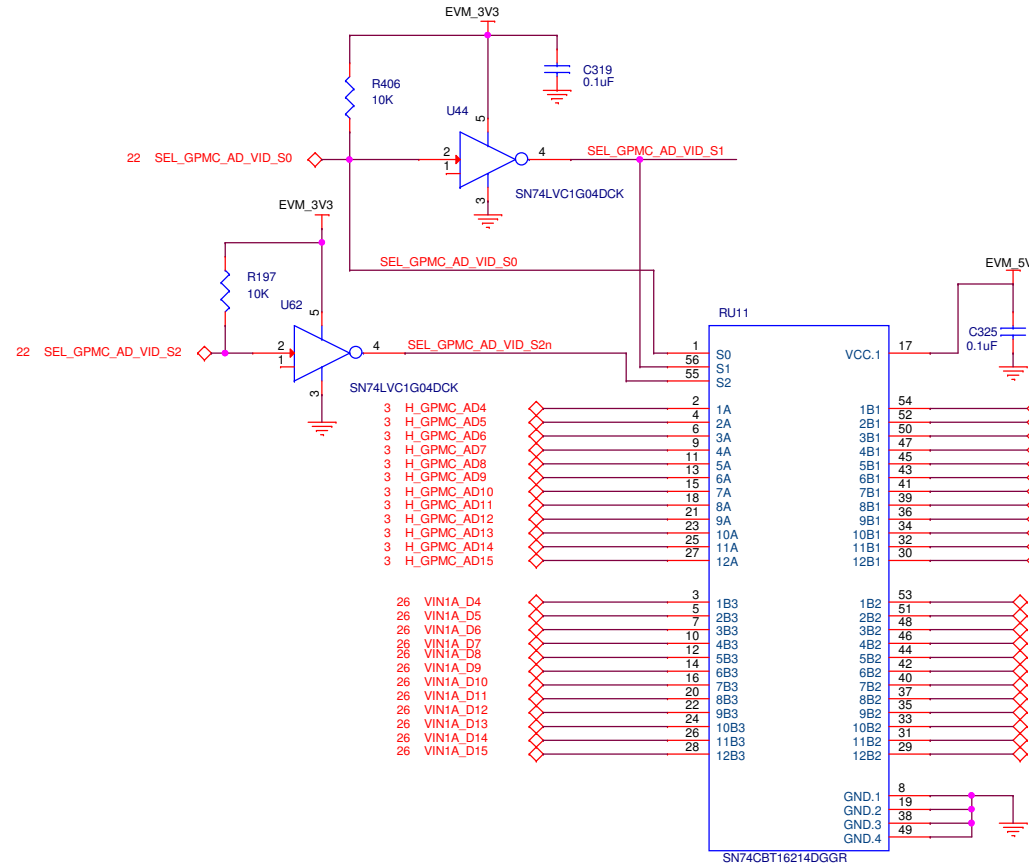
Title: "DRA71x/DRA79x/TDA2E-17/AM570x EVM CPU Board"

Page Contents: SoC DIG PWR

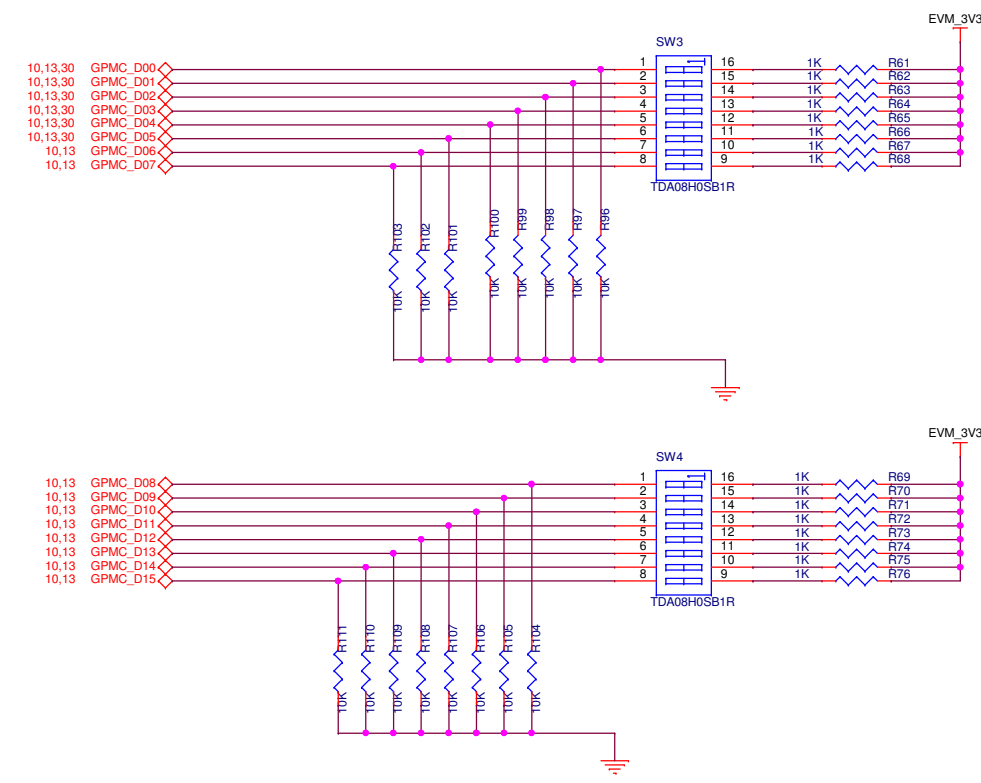
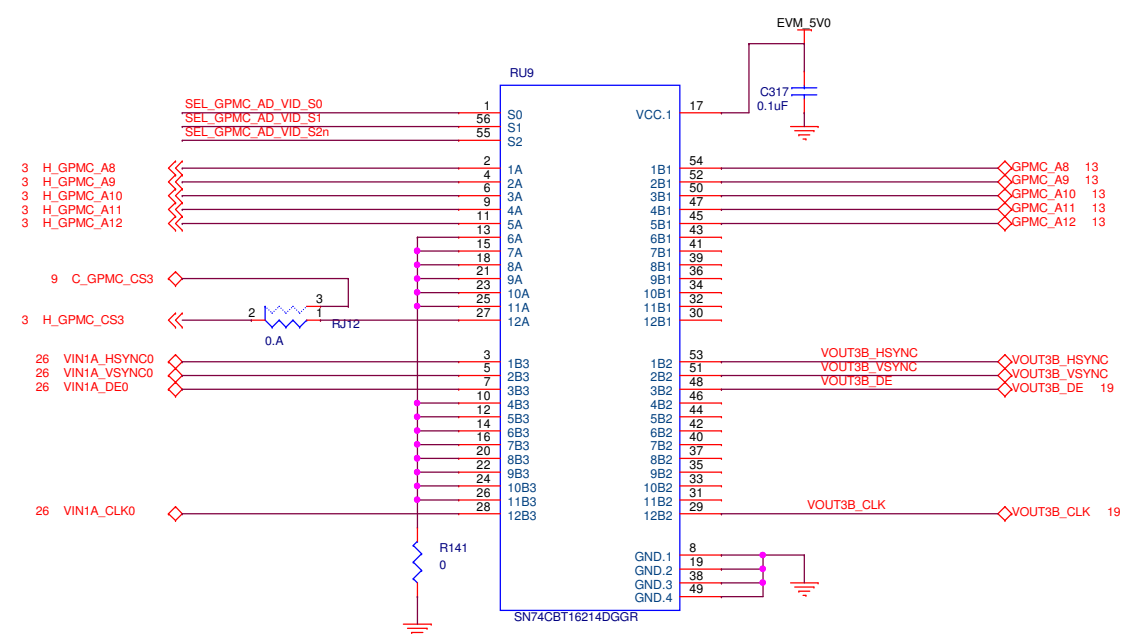
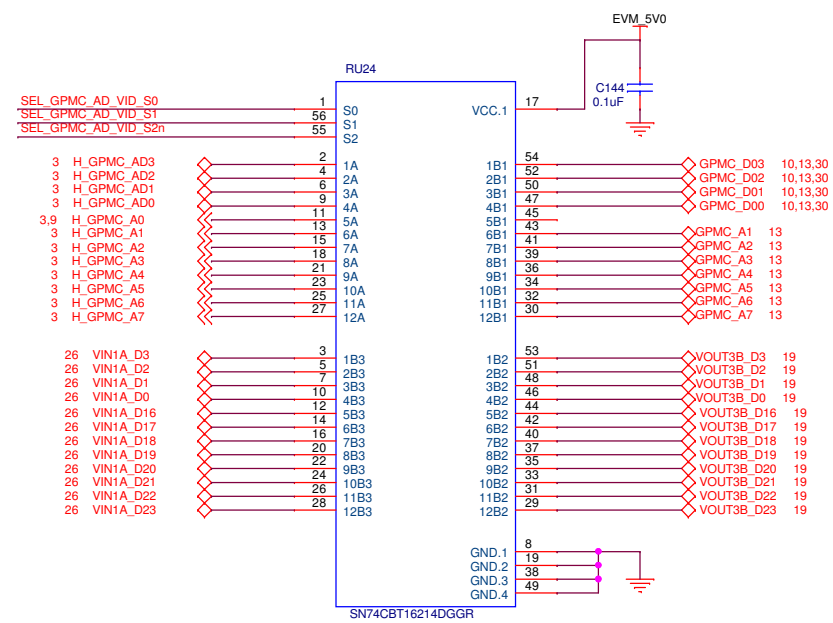
Size: C DOC NO: 518202 REV: D

Date: Friday, September 08, 2017 Sheet 7 of 30





DEFAULTS TO GPMC FOR BOOTING
A = B1 LLH : GPMC, xxx_S2=1,xxx_S0=1
A = B2 LHL : VOUT, xxx_S2=1,xxx_S0=0
A = B3 HLH : VIN , xxx_S2=0,xxx_S0=1



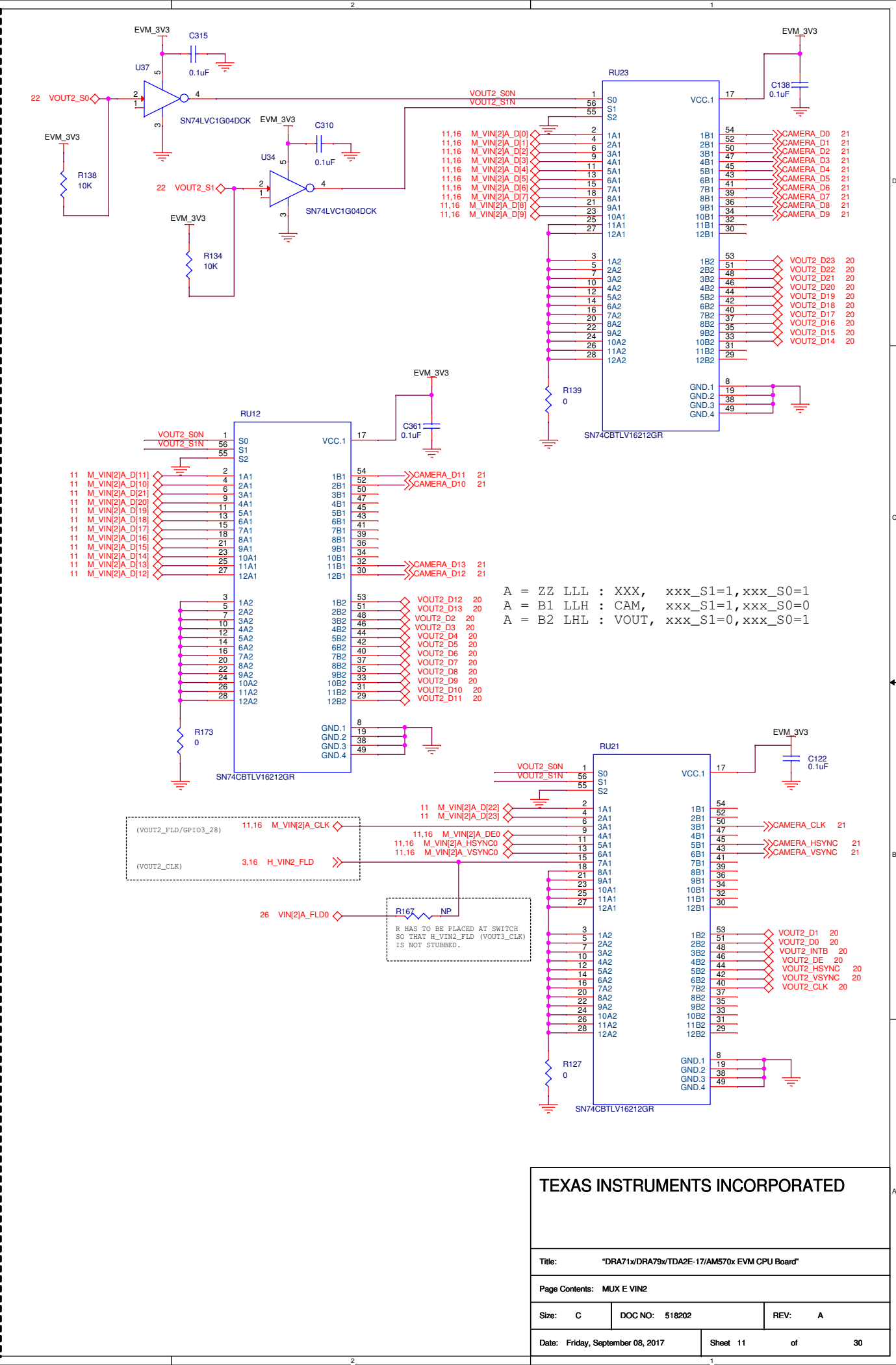
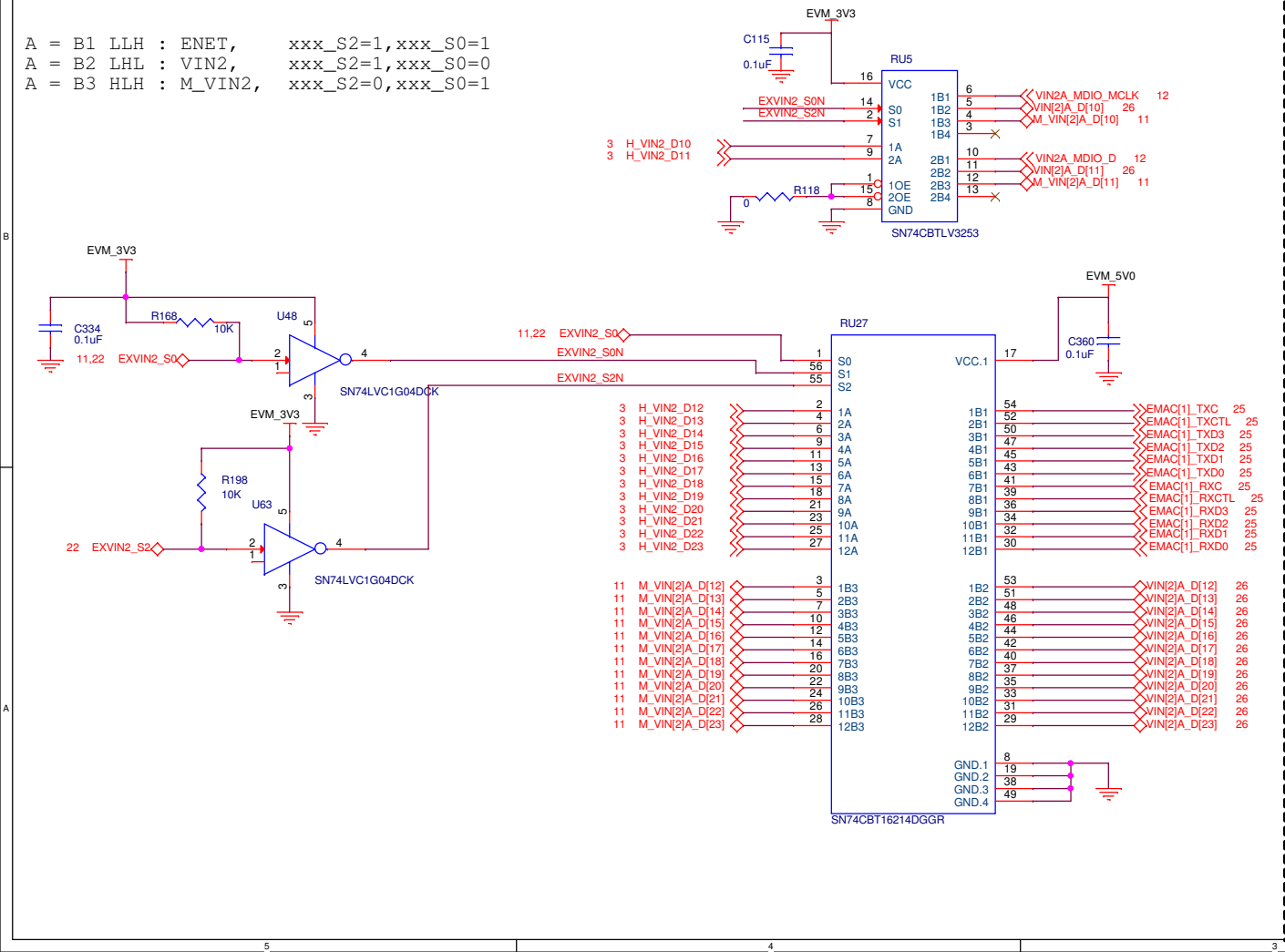
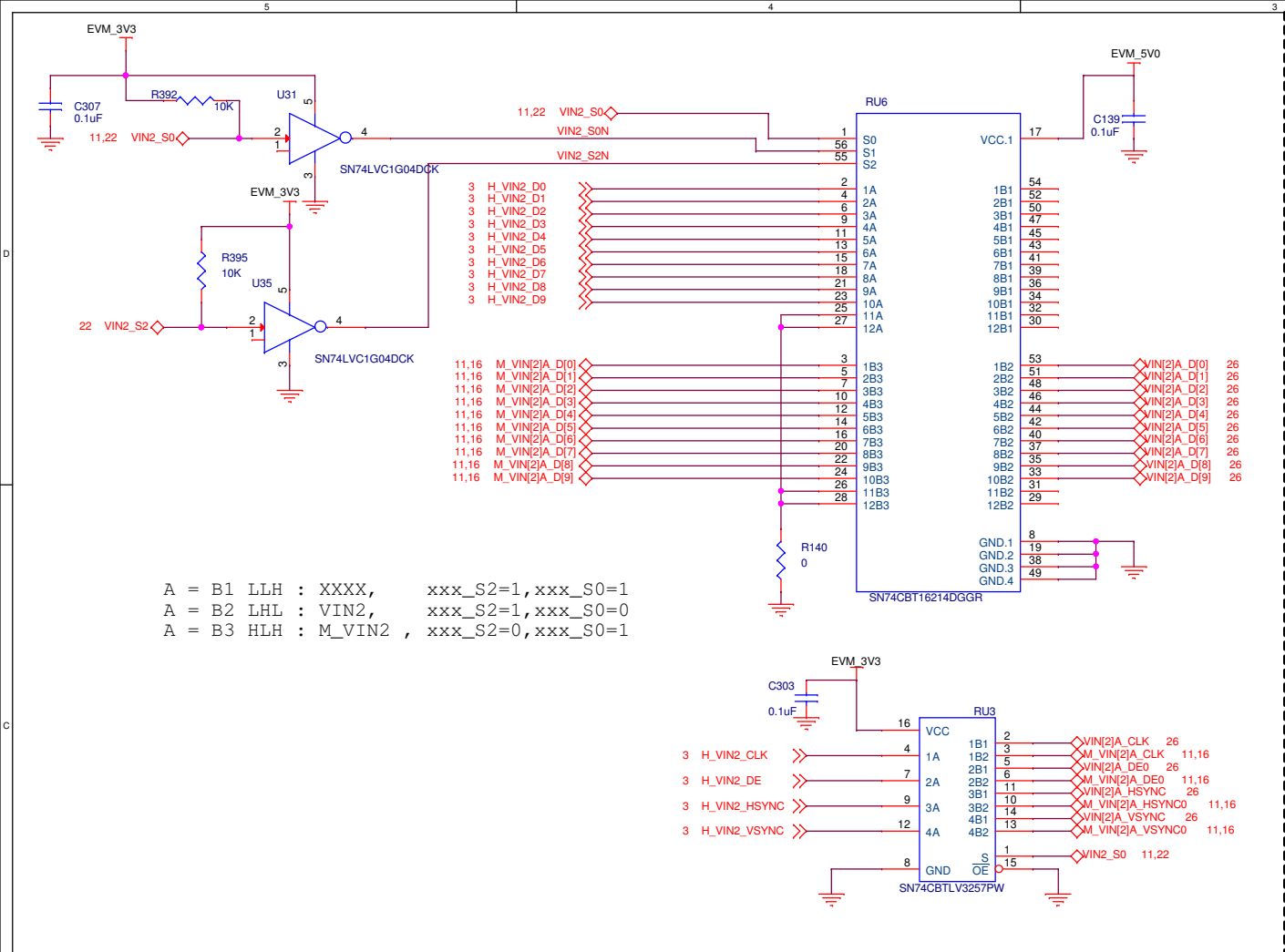
TEXAS INSTRUMENTS INCORPORATED

Title: "DRA71x/DRA79x/TDA2E-17/AM570x EVM CPU Board"

Page Contents: MUX B VOUT3/GPMC

Size: C DOC NO: 518202 REV: A

Date: Friday, September 08, 2017 Sheet 10 of 30



TEXAS INSTRUMENTS INCORPORATED

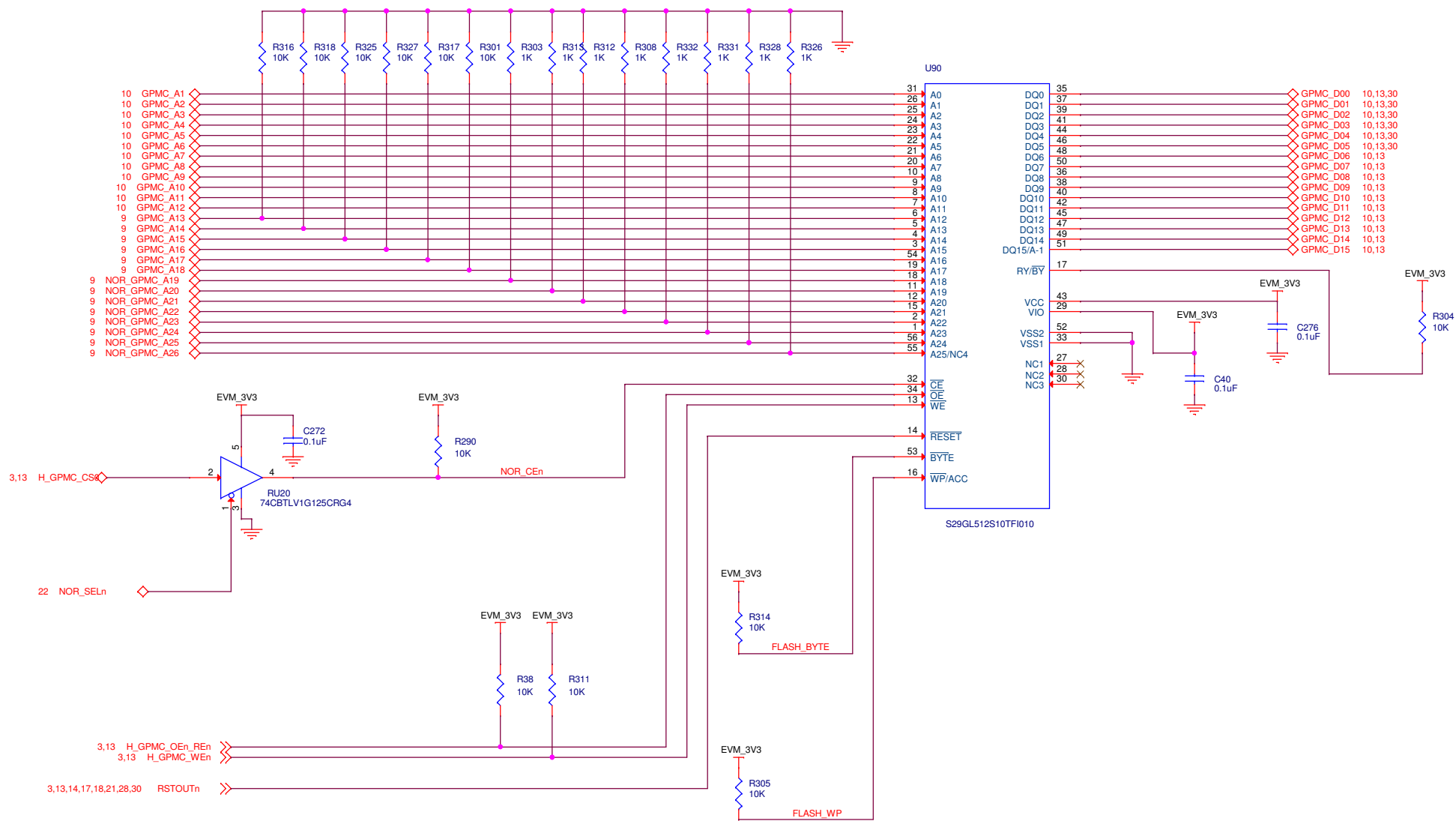
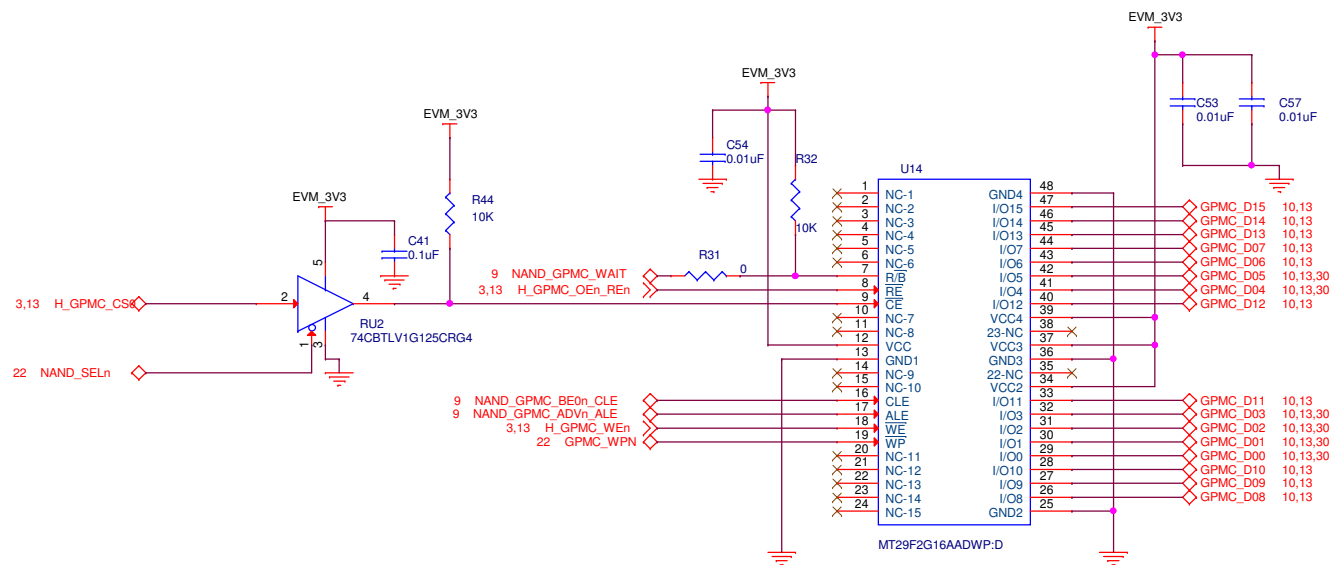
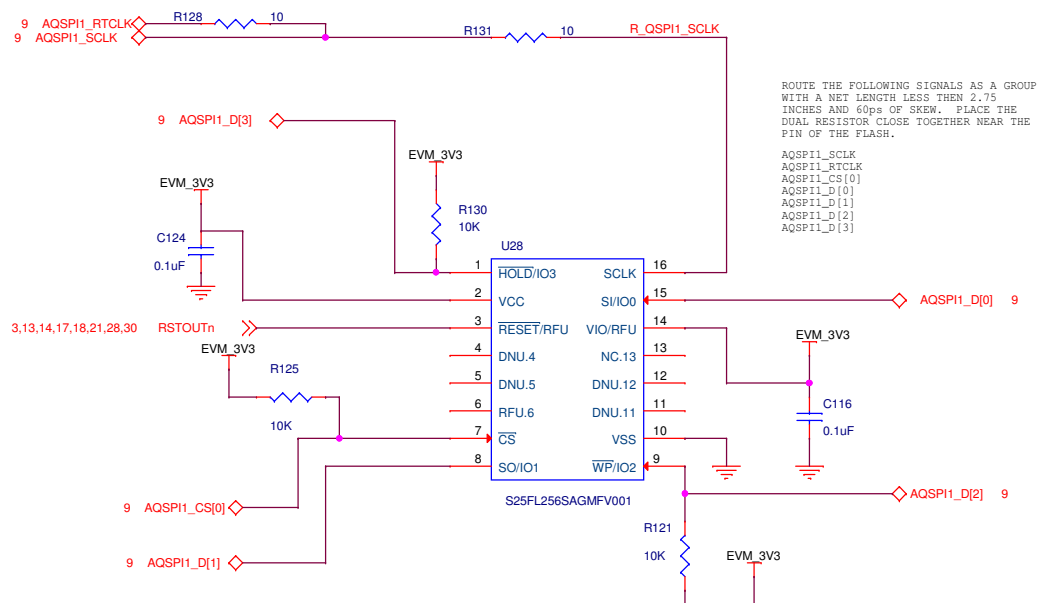
Title: "DRA71x/DRA79x/TDA2E-17/AM570x EVM CPU Board"

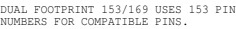
Page Contents: MUX E VIN2

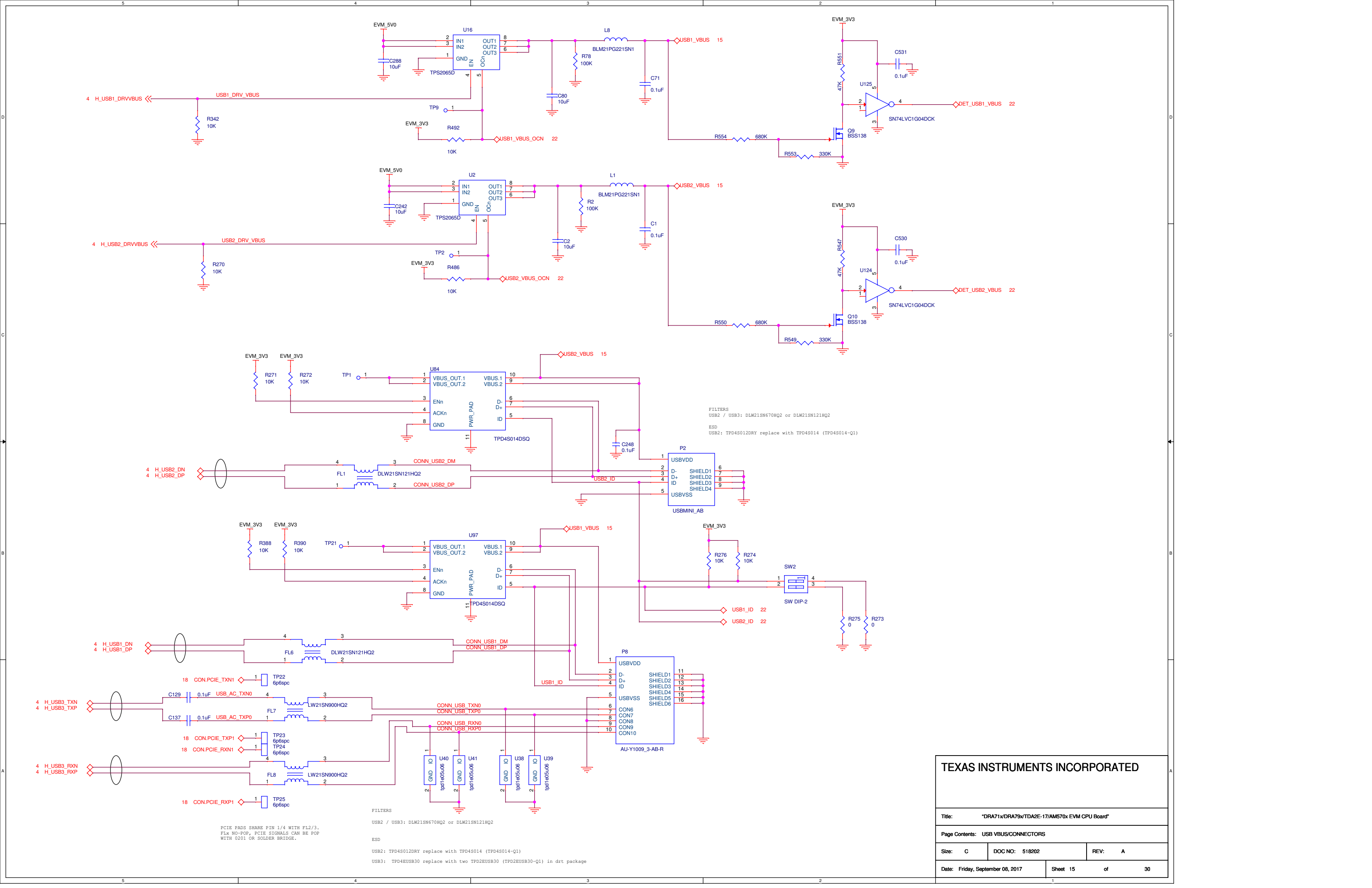
Size: C DOC NO: 518202 REV: A

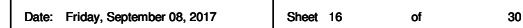
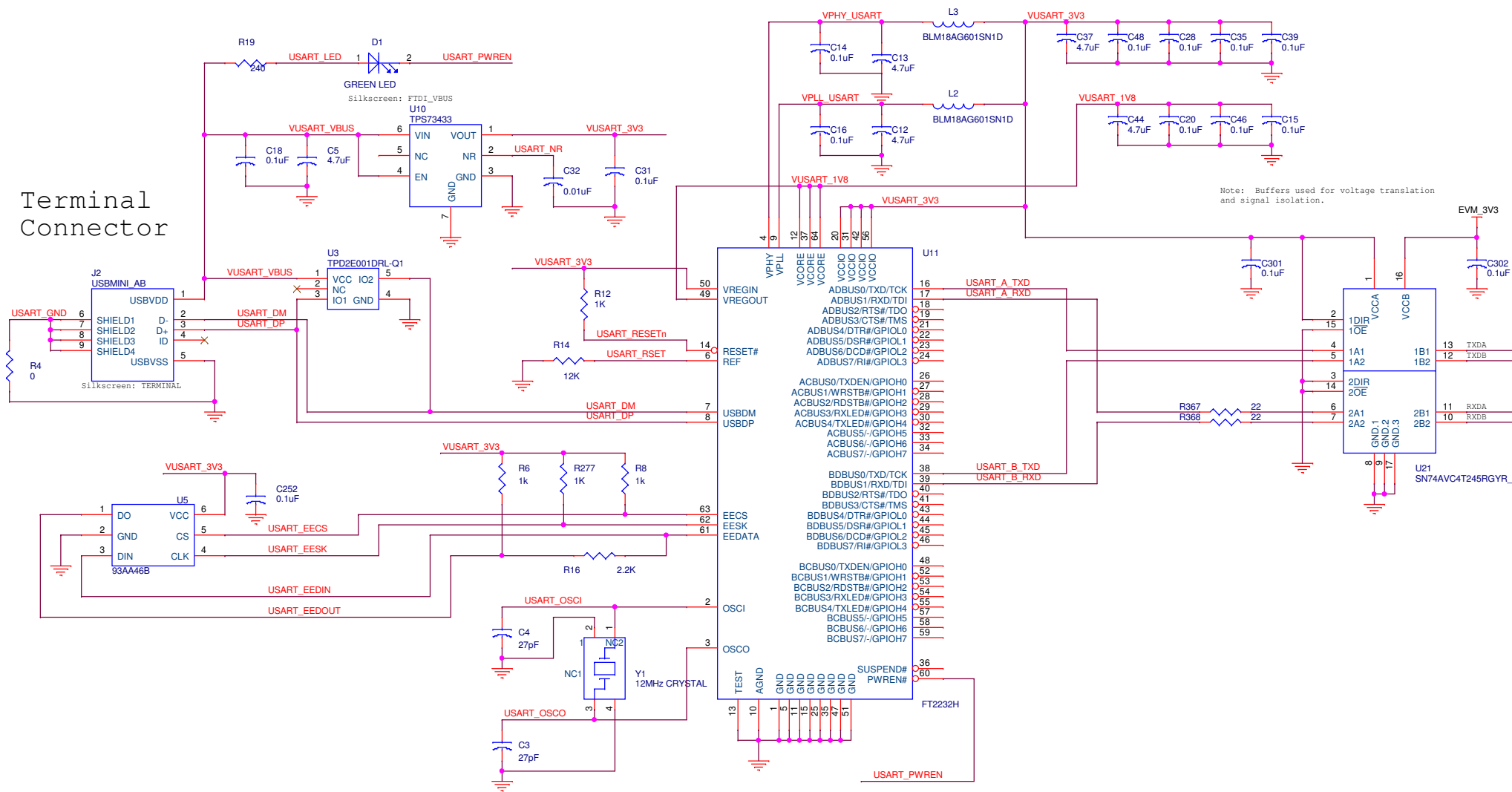
Date: Friday, September 08, 2017 Sheet 11 of 30

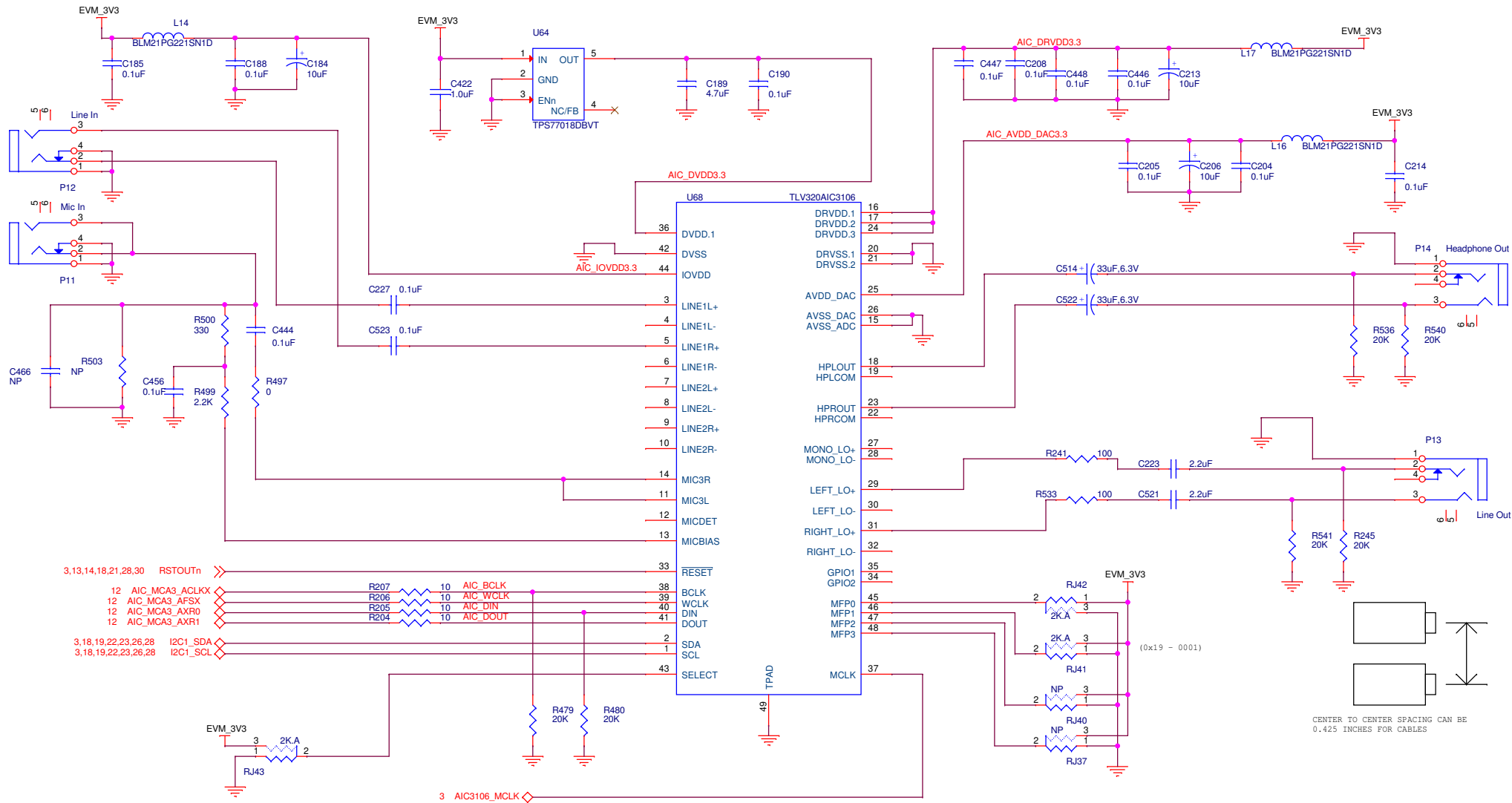












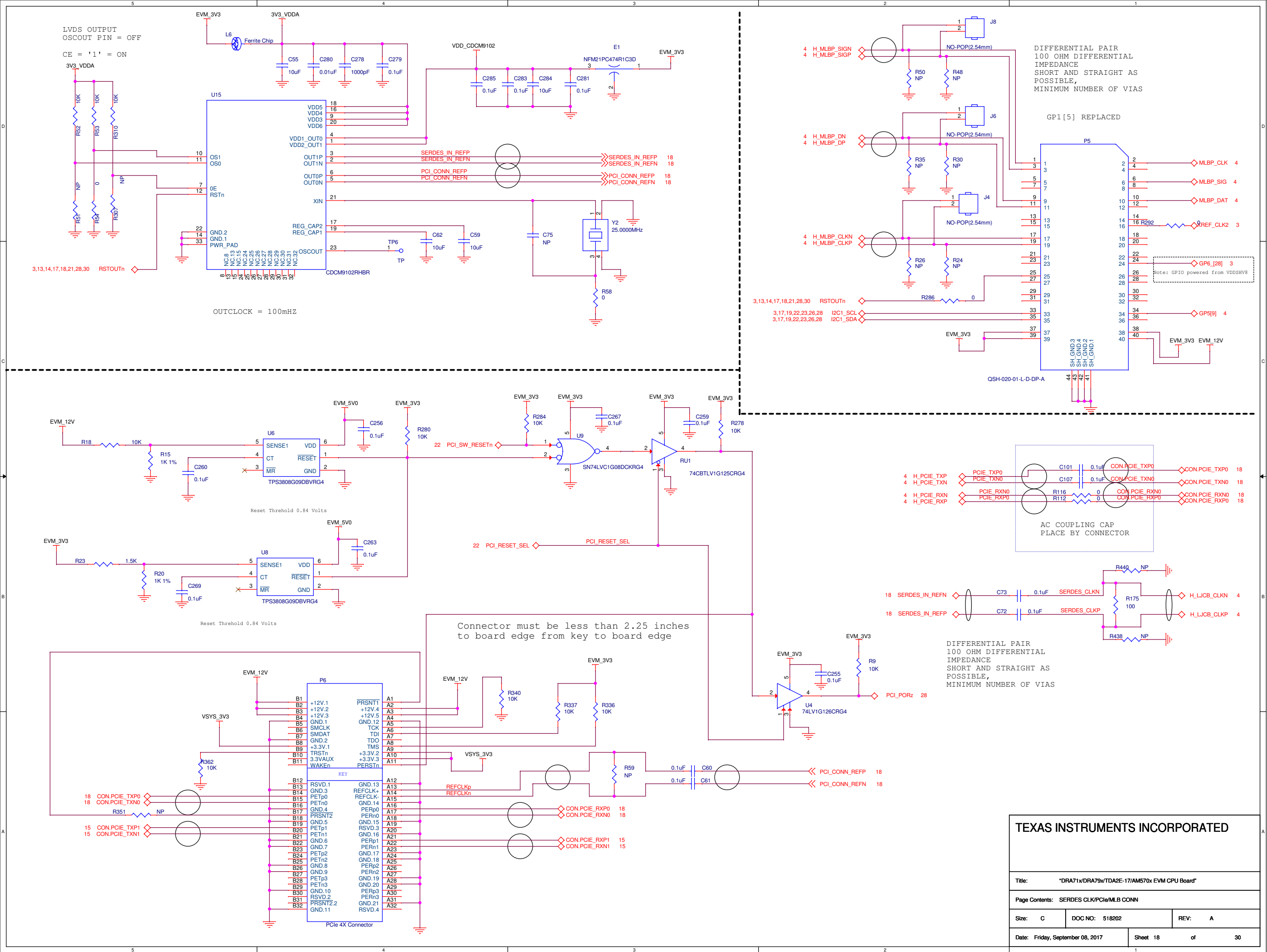
TEXAS INSTRUMENTS INCORPORATED

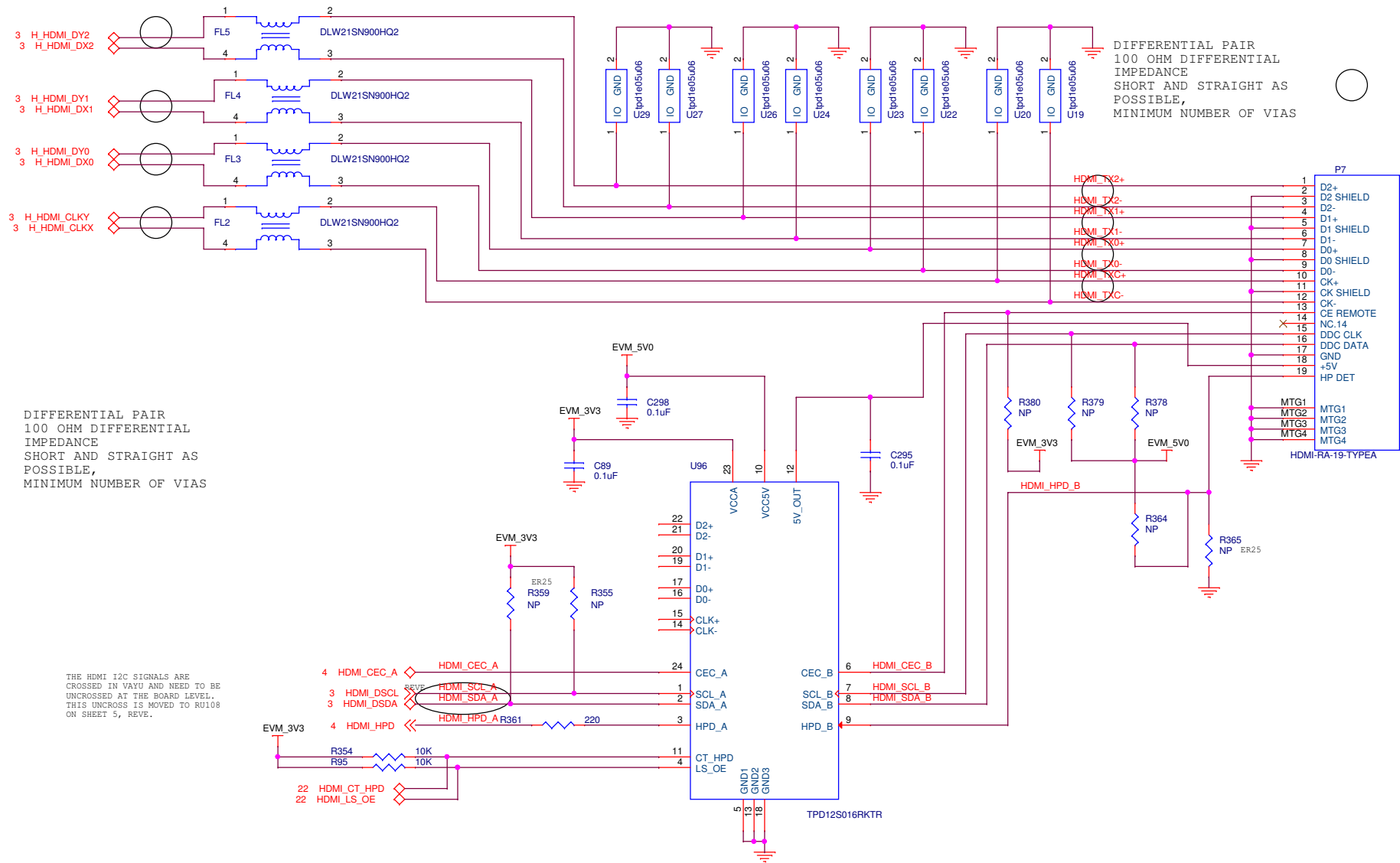
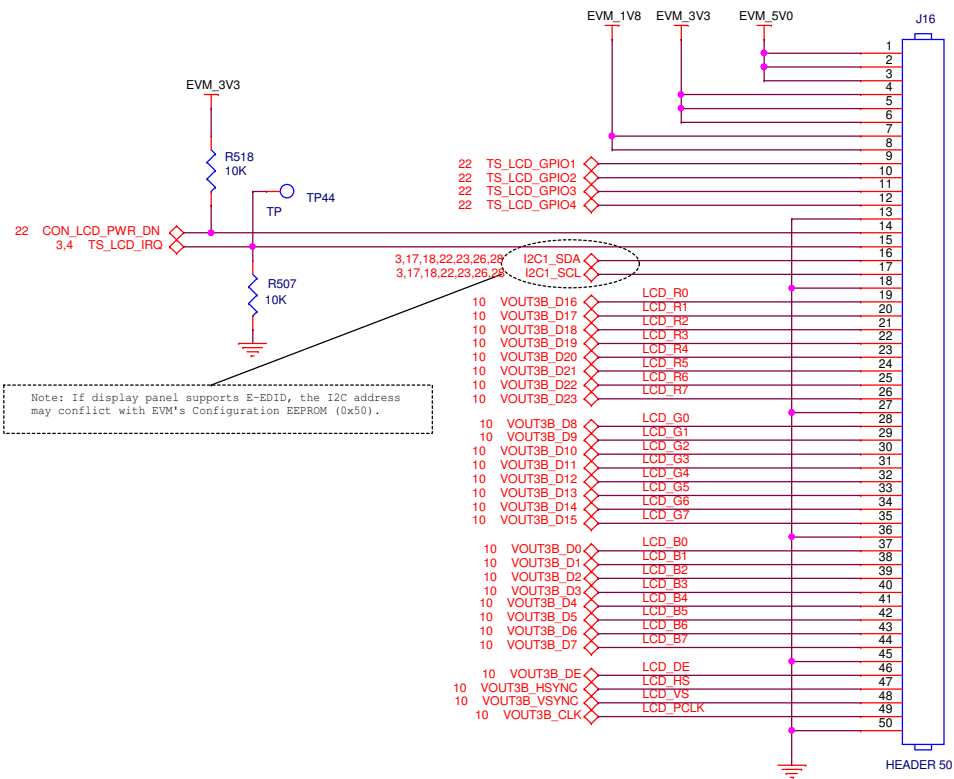
Title: "DRA71x/DRA79x/TDA2E-17/AM570x EVM CPU Board"

Page Contents: AIC3106

Size: C DOC NO: 518202 REV: A

Date: Friday, September 08, 2017 Sheet 17 of 30





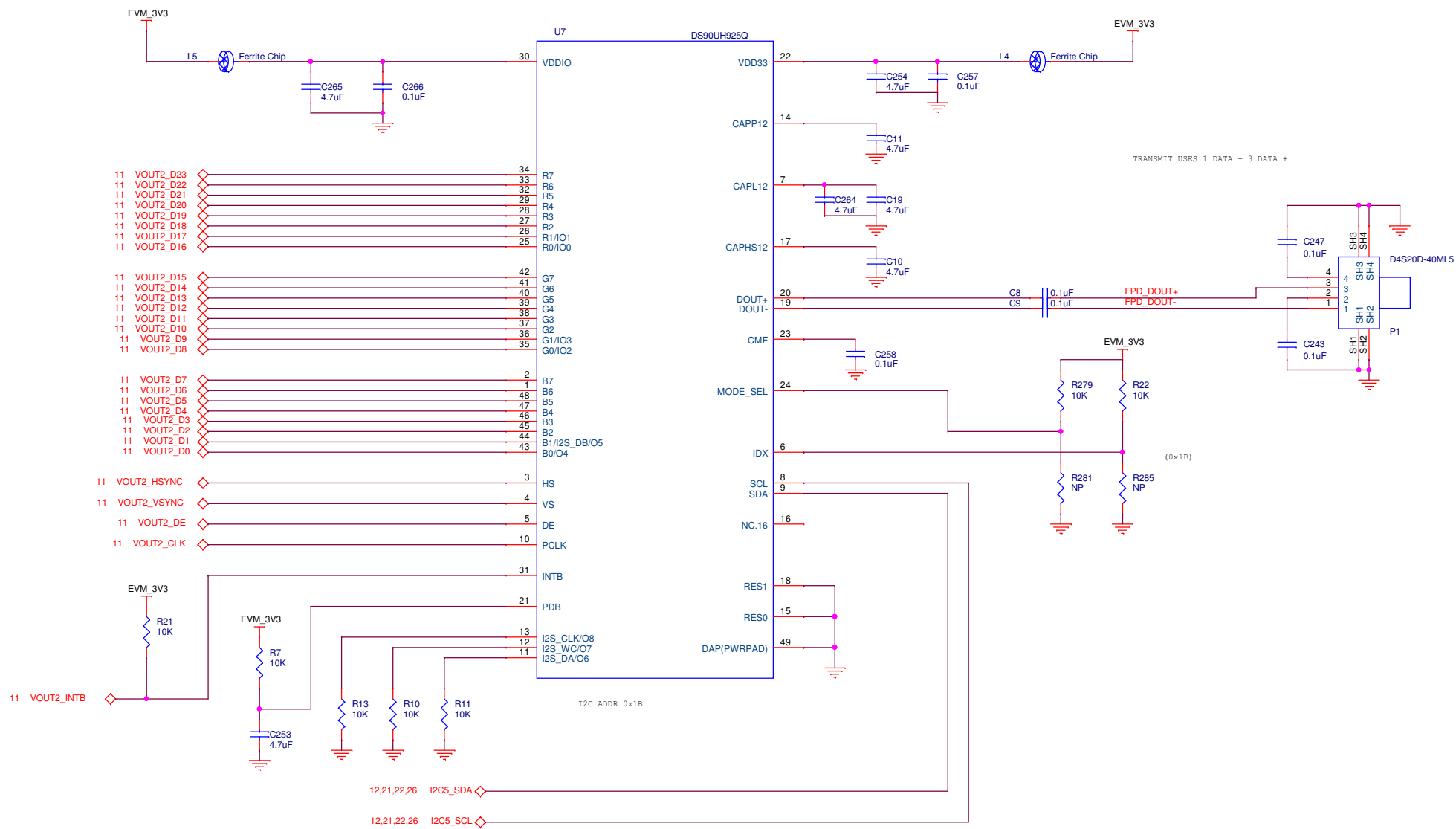
TEXAS INSTRUMENTS INCORPORATED

Title: "DRA71x/DRA79x/TDA2E-17/AM570x EVM CPU Board"

Page Contents: LCD/HDMI CONNECTORS

Size: C DOC NO: 518202 REV: A

Date: Friday, September 08, 2017 Sheet 19 of 30



TEXAS INSTRUMENTS INCORPORATED

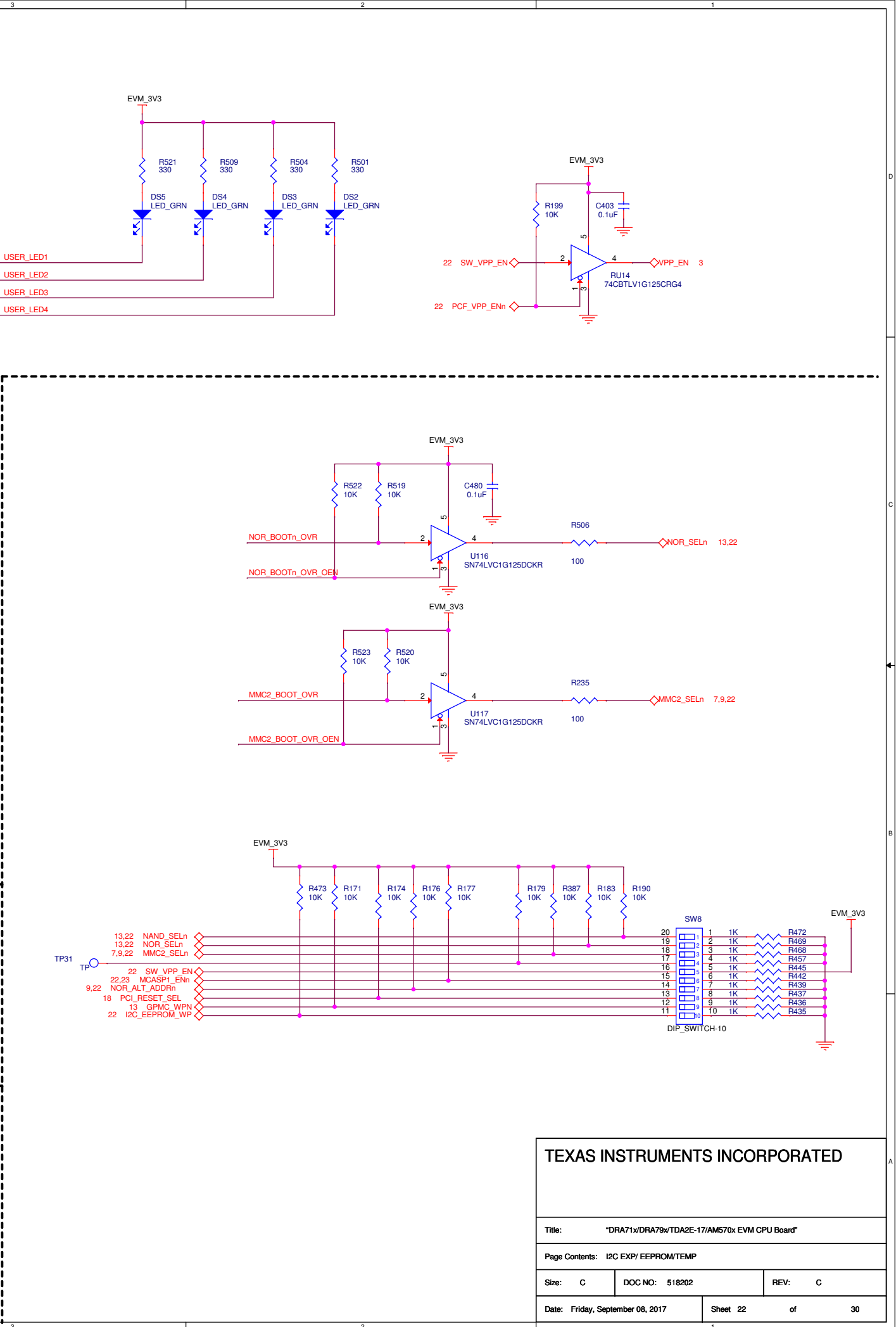
Title: "DRA71x/DRA79x/TDA2E-17/AM570x EVM CPU Board"

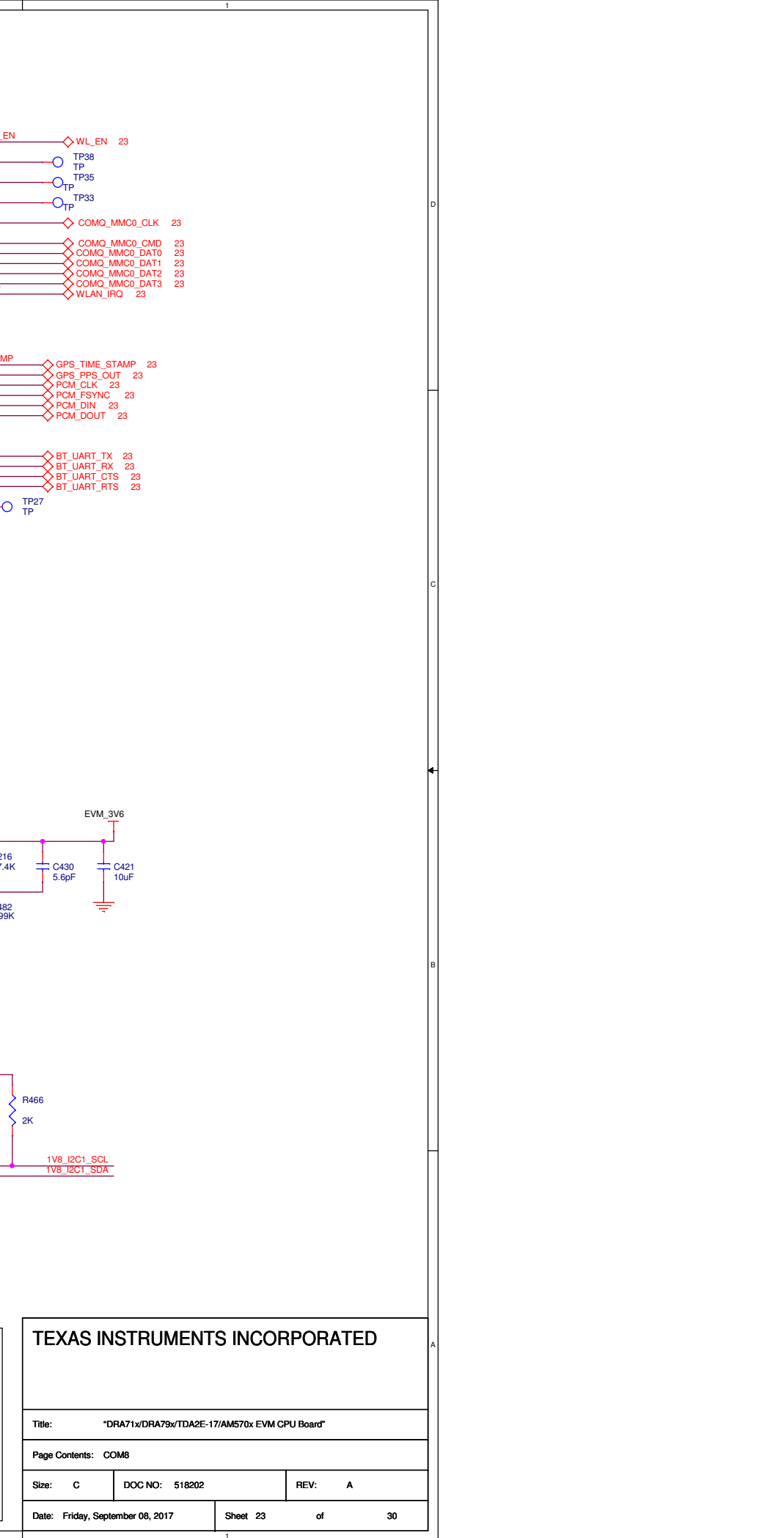
Page Contents: FPD LINK

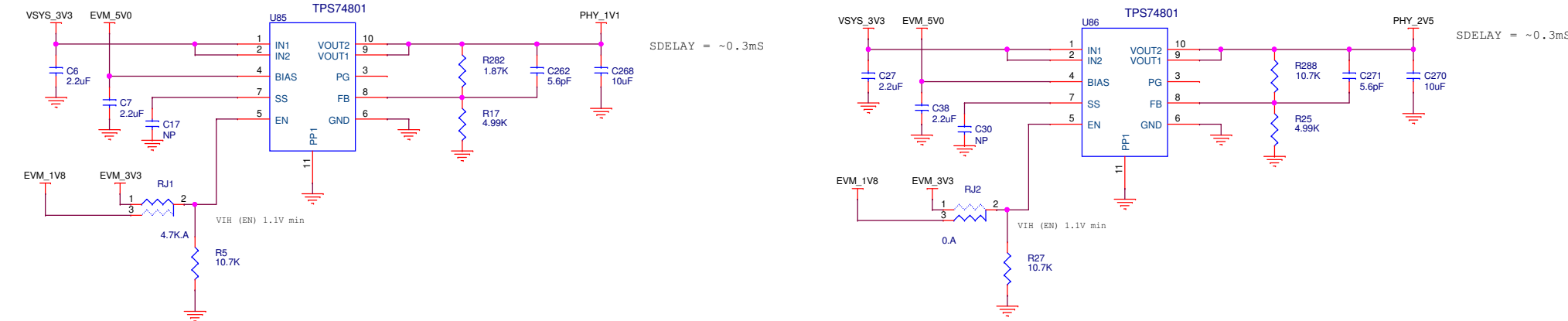
Size: C DOC NO: 518202 REV: A

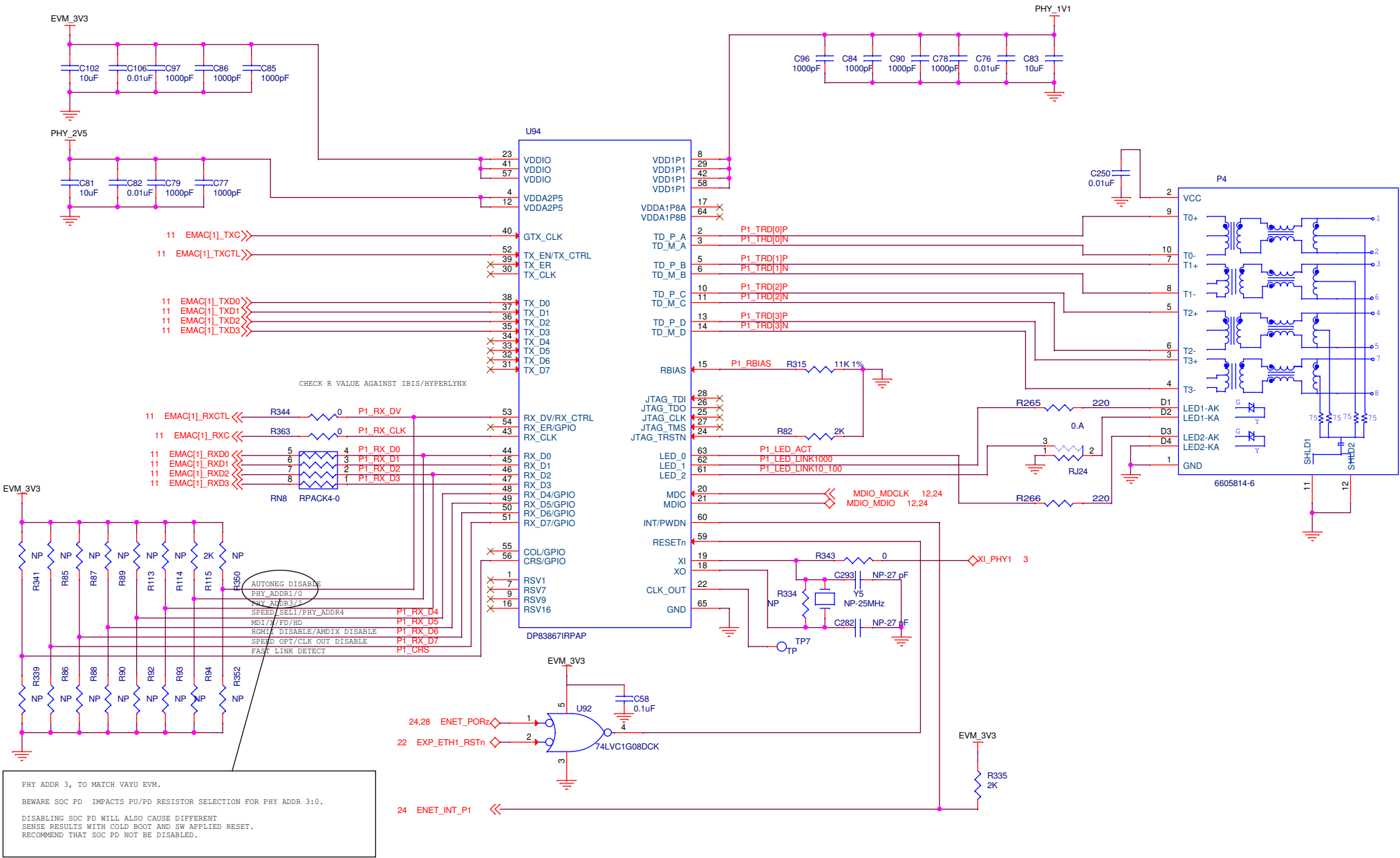
Date: Friday, September 08, 2017 Sheet 20 of 30









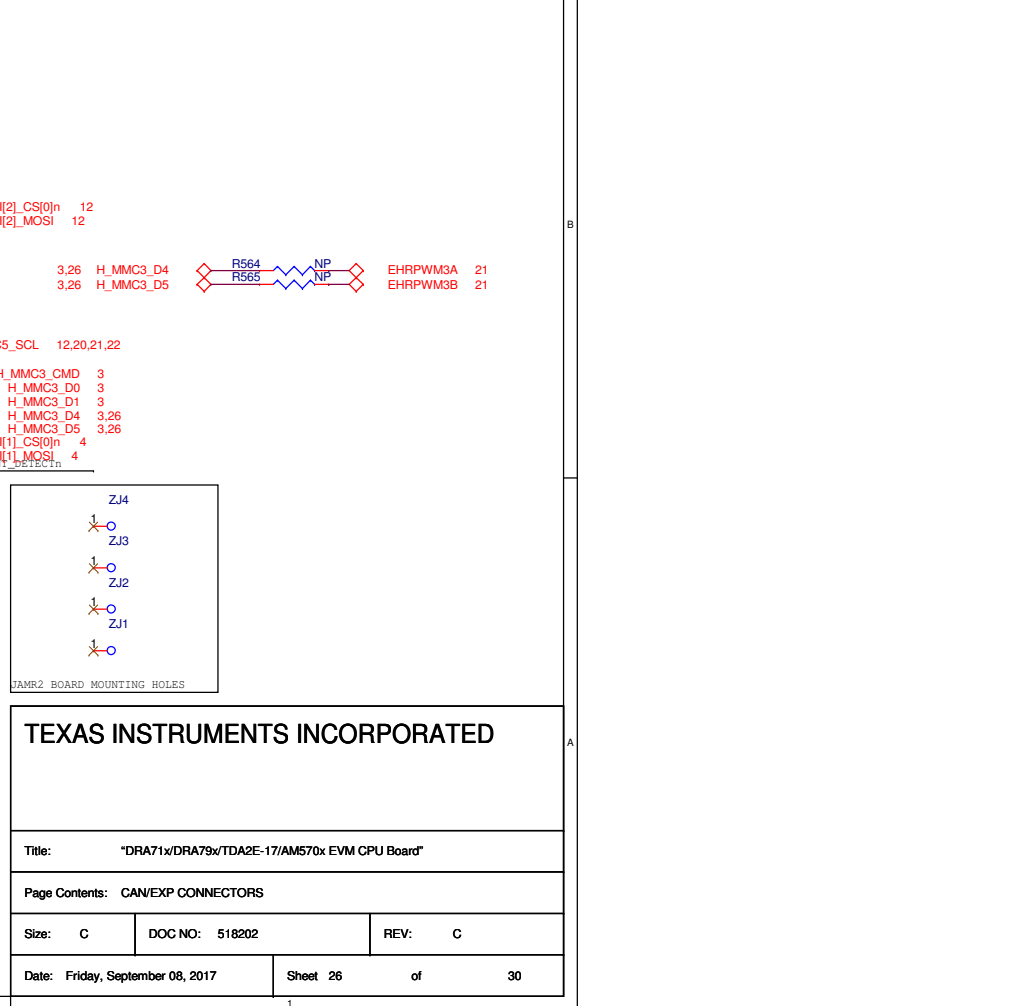
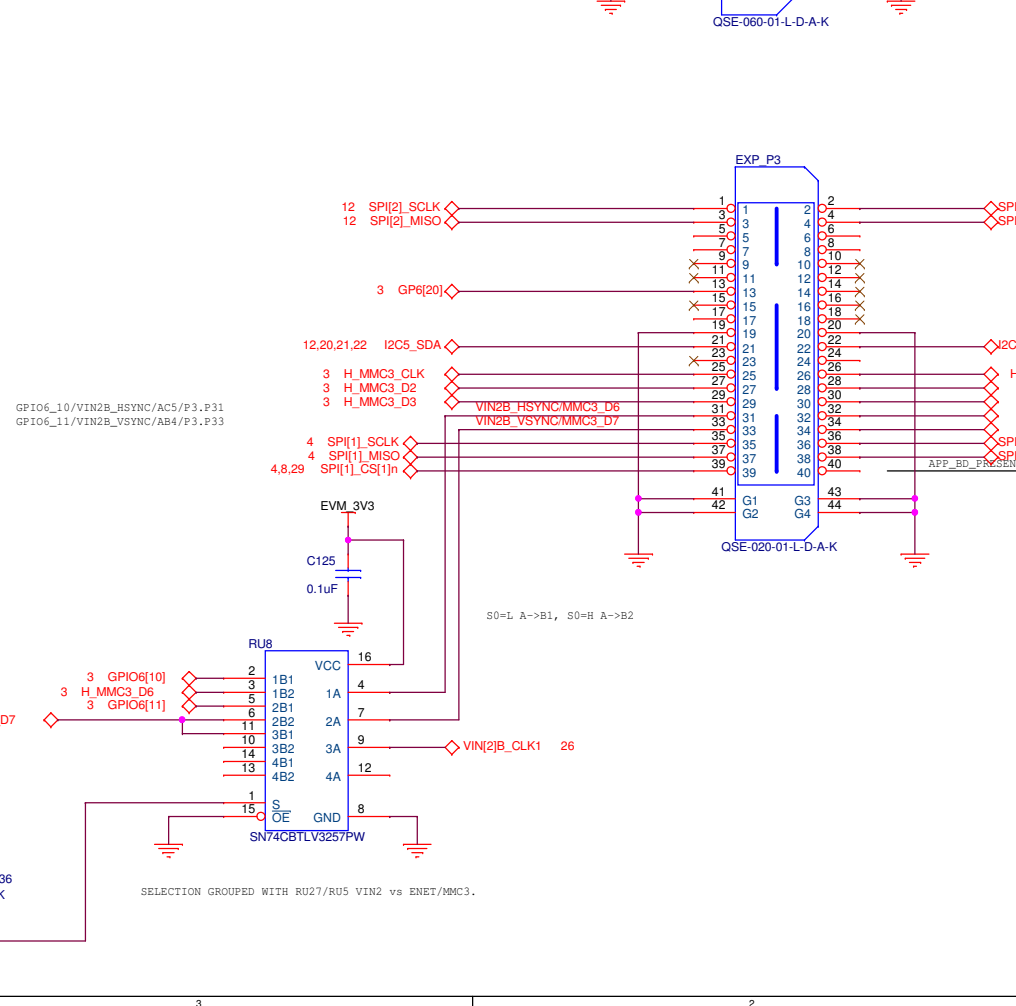
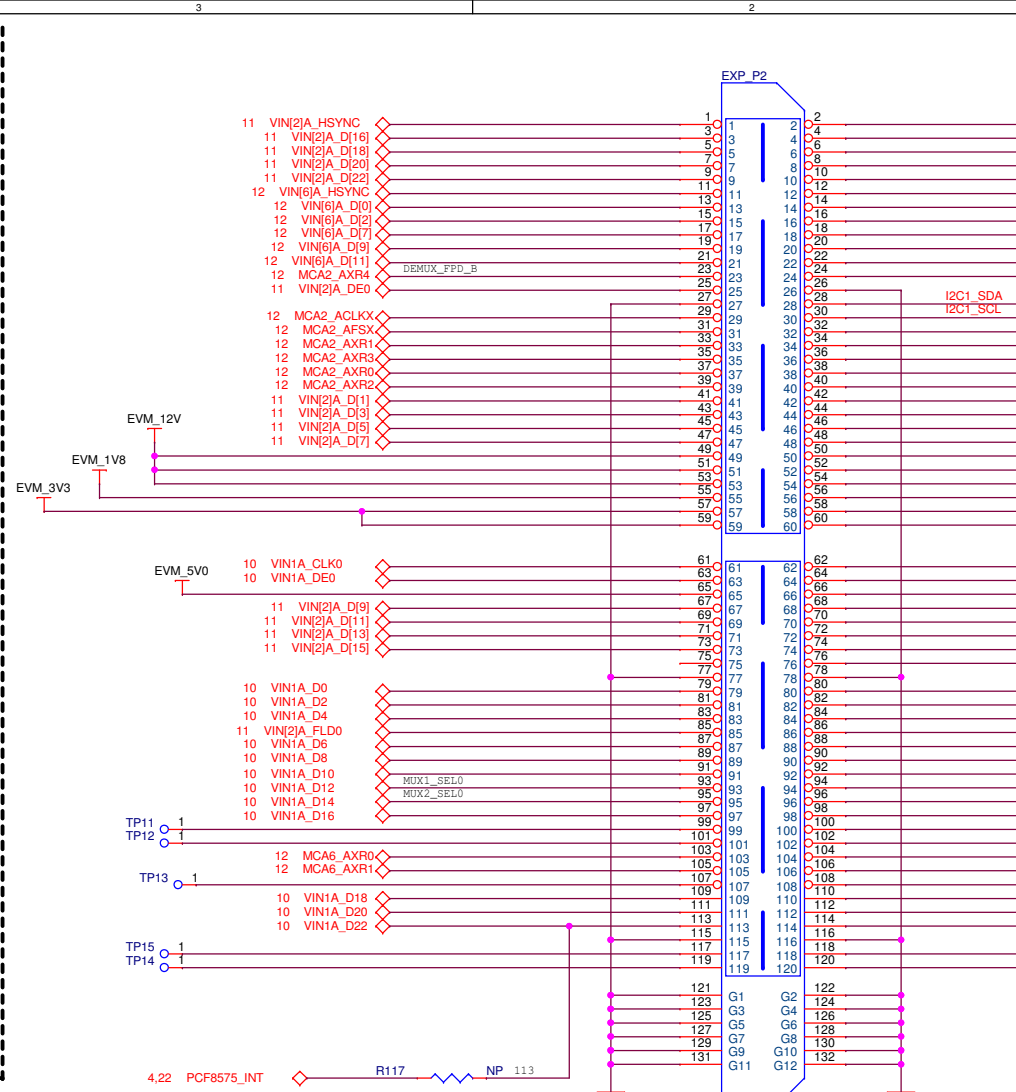


TEXAS INSTRUMENTS INCORPORATED

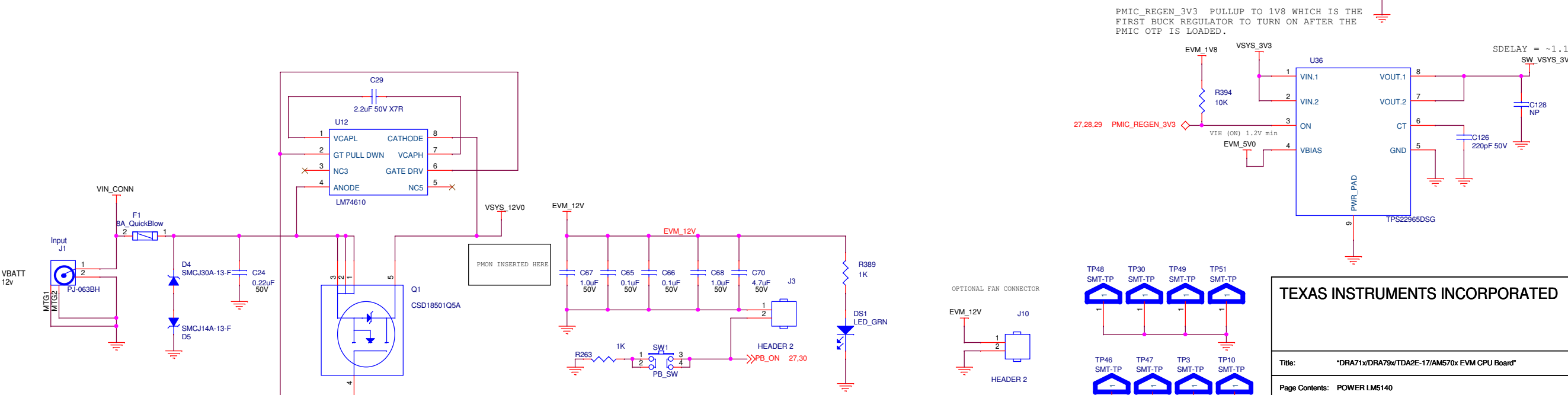
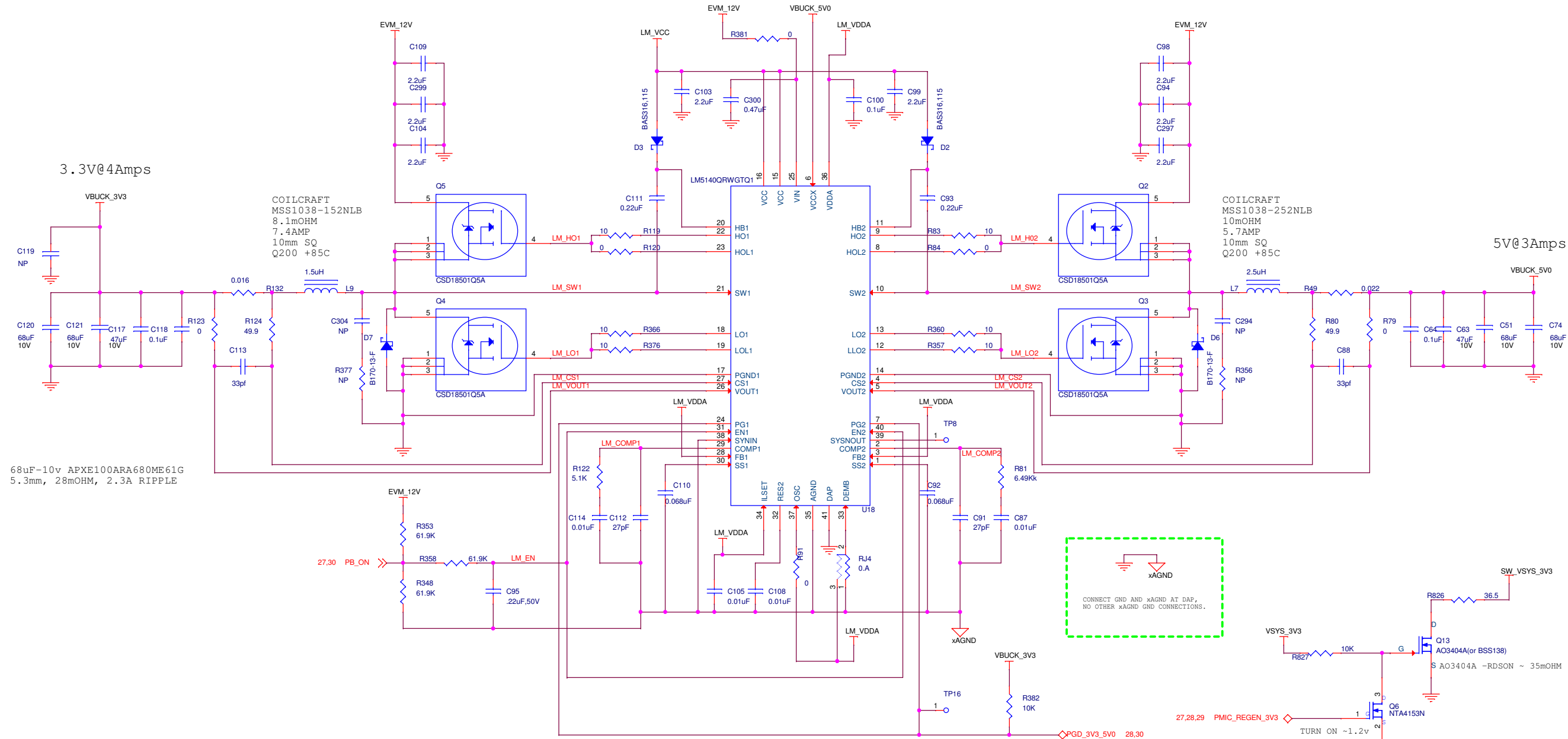
Title: "DRA71x/DRA79x/TDA2E-17/AM570x EVM CPU Board"

Page Contents: ETHERNET PORT1

Size: C	DOC NO: 518202	REV: A
Date: Friday, September 08, 2017	Sheet 25 of	30



12V Nom Automotive,
24V Nom Industrial



TEXAS INSTRUMENTS INCORPORATED

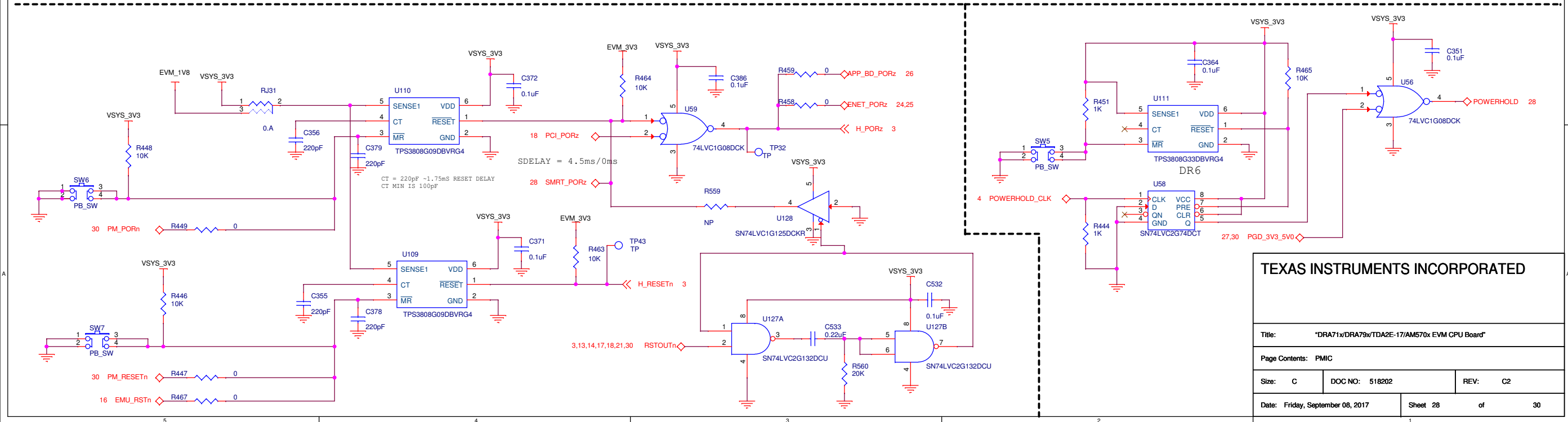
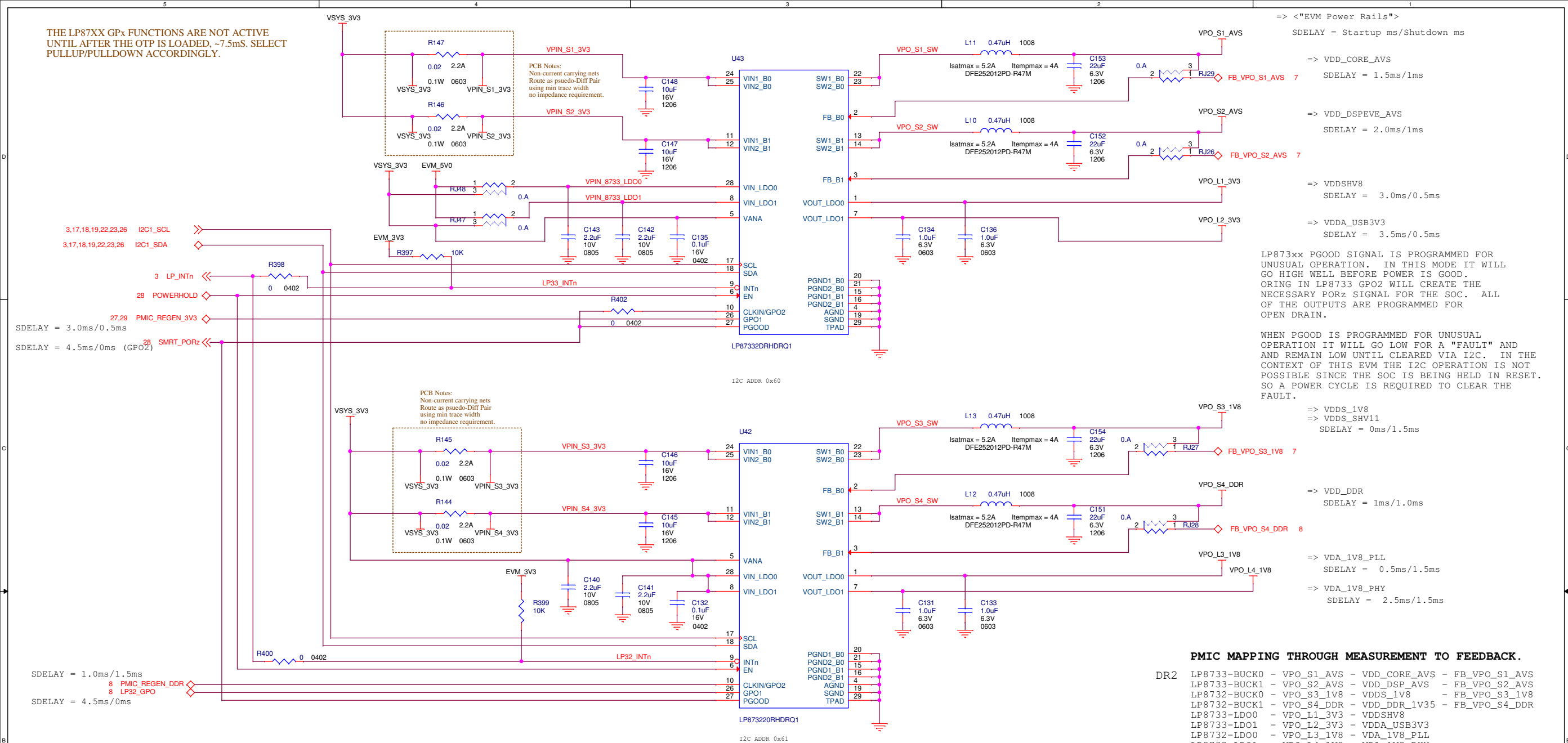
Title: "DRA71x/DRA79x/TDA2E-17/AM570x EVM CPU Board"

Page Contents: POWER LM5140

Size: C DOC NO: 518202 REV: C

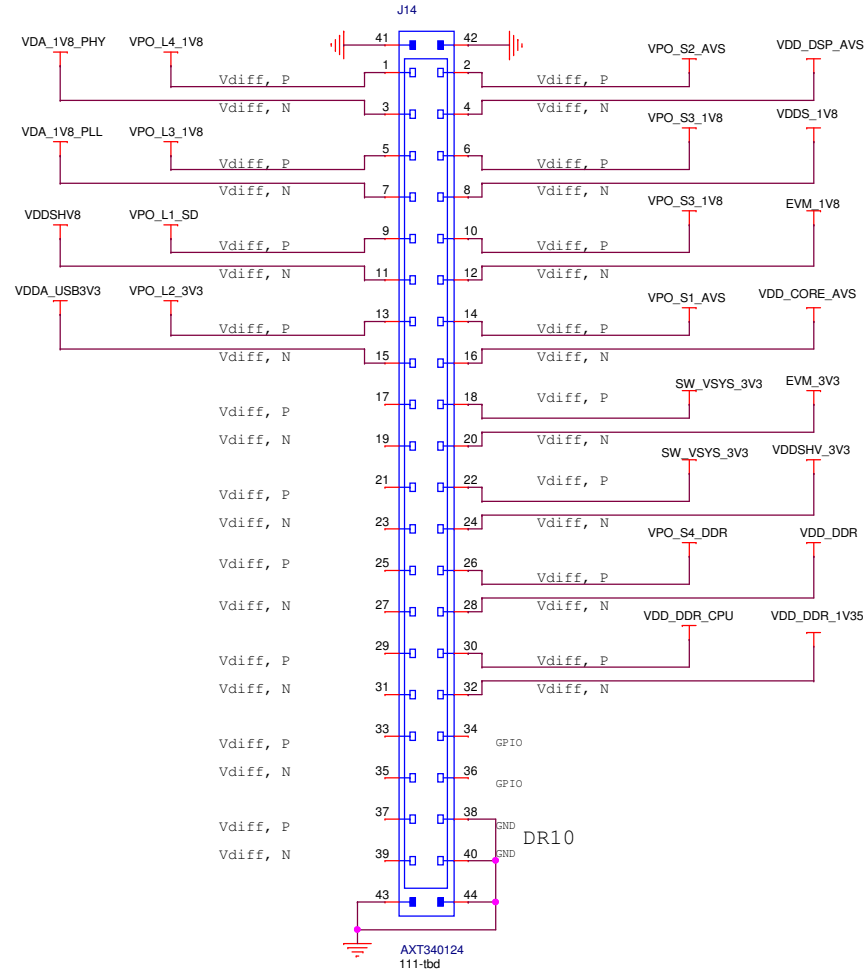
Date: Friday, September 08, 2017 Sheet 27 of 30

THE LP87XX GPx FUNCTIONS ARE NOT ACTIVE UNTIL AFTER THE OTP IS LOADED, ~7.5mS. SELECT PULLUP/PULLDOWN ACCORDINGLY.



DARA Bd can be interfaced to conduct more in-depth power measurements.

All Vdfff signal pairs (P & N) shown should be routed as pseudo-Diff Pair segments using min trace widths since these are low voltage sensing nets, not power delivery nets.



PM2 Board Components and Connections:

- Power and Ground:** EVM_3V3, 0.1uF capacitor (C401), GND.
- Resistors:** R192, R200, R187 (10K), R184 (10K), R269 (1K), R262 (10K), R369.
- Transistor:** Q7 BSS138.
- Jumpers:** PM2_SEL, PM2_OEn.
- Connectors:** J12A-40S-0.5SH(55) (40-pin ribbon cable).

PM2 Board Pinout:

Pin	Signal
1	PM1_SCL
2	PM2_SCL
3	PM1_SDA
4	PM2_SDA
5	PM_SEL
6	PM_OEn
7	PM_BRD_PWR_OFF
8	PM_PORn
9	PM_RESETn
10	RSTOUTn
11	GP5[0]
12	GP5[1]

PM1 Board Pinout:

Pin	Signal
1	PM1_SCL
2	PM2_SCL
3	PM1_SDA
4	PM2_SDA
5	PM_SEL
6	PM_OEn
7	PM_BRD_PWR_OFF
8	PM_PORn
9	PM_RESETn
10	RSTOUTn
11	GP5[0]
12	GP5[1]

Notes:

- BOOT SWITCHES SHOULD BE SET TO OFF FOR PULLDOWNS. AUTOMATION WILL DRIVE HIGH TO OVERRIDE.
- ALL SIGNALS REFERENCED TO GND.
- Cable : J12A-40S-0.5SH(55)

[illegible]

Title: "DRA71x/DRA79x/TDA2E-17/AM570x EVM CPU Board"		
Page Contents: DARA AND AUTOMATION		
Size: C	DOC NO: 518202	REV: C2
Date: Friday, September 08, 2017	Sheet 30	of 30

IMPORTANT NOTICE FOR TI DESIGN INFORMATION AND RESOURCES

Texas Instruments Incorporated ("TI") technical, application or other design advice, services or information, including, but not limited to, reference designs and materials relating to evaluation modules, (collectively, "TI Resources") are intended to assist designers who are developing applications that incorporate TI products; by downloading, accessing or using any particular TI Resource in any way, you (individually or, if you are acting on behalf of a company, your company) agree to use it solely for this purpose and subject to the terms of this Notice.

TI's provision of TI Resources does not expand or otherwise alter TI's applicable published warranties or warranty disclaimers for TI products, and no additional obligations or liabilities arise from TI providing such TI Resources. TI reserves the right to make corrections, enhancements, improvements and other changes to its TI Resources.

You understand and agree that you remain responsible for using your independent analysis, evaluation and judgment in designing your applications and that you have full and exclusive responsibility to assure the safety of your applications and compliance of your applications (and of all TI products used in or for your applications) with all applicable regulations, laws and other applicable requirements. You represent that, with respect to your applications, you have all the necessary expertise to create and implement safeguards that (1) anticipate dangerous consequences of failures, (2) monitor failures and their consequences, and (3) lessen the likelihood of failures that might cause harm and take appropriate actions. You agree that prior to using or distributing any applications that include TI products, you will thoroughly test such applications and the functionality of such TI products as used in such applications. TI has not conducted any testing other than that specifically described in the published documentation for a particular TI Resource.

You are authorized to use, copy and modify any individual TI Resource only in connection with the development of applications that include the TI product(s) identified in such TI Resource. NO OTHER LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE TO ANY OTHER TI INTELLECTUAL PROPERTY RIGHT, AND NO LICENSE TO ANY TECHNOLOGY OR INTELLECTUAL PROPERTY RIGHT OF TI OR ANY THIRD PARTY IS GRANTED HEREIN, including but not limited to any patent right, copyright, mask work right, or other intellectual property right relating to any combination, machine, or process in which TI products or services are used. Information regarding or referencing third-party products or services does not constitute a license to use such products or services, or a warranty or endorsement thereof. Use of TI Resources may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

TI RESOURCES ARE PROVIDED "AS IS" AND WITH ALL FAULTS. TI DISCLAIMS ALL OTHER WARRANTIES OR REPRESENTATIONS, EXPRESS OR IMPLIED, REGARDING TI RESOURCES OR USE THEREOF, INCLUDING BUT NOT LIMITED TO ACCURACY OR COMPLETENESS, TITLE, ANY EPIDEMIC FAILURE WARRANTY AND ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT OF ANY THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

TI SHALL NOT BE LIABLE FOR AND SHALL NOT DEFEND OR INDEMNIFY YOU AGAINST ANY CLAIM, INCLUDING BUT NOT LIMITED TO ANY INFRINGEMENT CLAIM THAT RELATES TO OR IS BASED ON ANY COMBINATION OF PRODUCTS EVEN IF DESCRIBED IN TI RESOURCES OR OTHERWISE. IN NO EVENT SHALL TI BE LIABLE FOR ANY ACTUAL, DIRECT, SPECIAL, COLLATERAL, INDIRECT, PUNITIVE, INCIDENTAL, CONSEQUENTIAL OR EXEMPLARY DAMAGES IN CONNECTION WITH OR ARISING OUT OF TI RESOURCES OR USE THEREOF, AND REGARDLESS OF WHETHER TI HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

You agree to fully indemnify TI and its representatives against any damages, costs, losses, and/or liabilities arising out of your non-compliance with the terms and provisions of this Notice.

This Notice applies to TI Resources. Additional terms apply to the use and purchase of certain types of materials, TI products and services. These include; without limitation, TI's standard terms for semiconductor products (<http://www.ti.com/sc/docs/stdterms.htm>), [evaluation modules](#), and [samples](http://www.ti.com/sc/docs/sampterm.htm) (<http://www.ti.com/sc/docs/sampterm.htm>).

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2018, Texas Instruments Incorporated