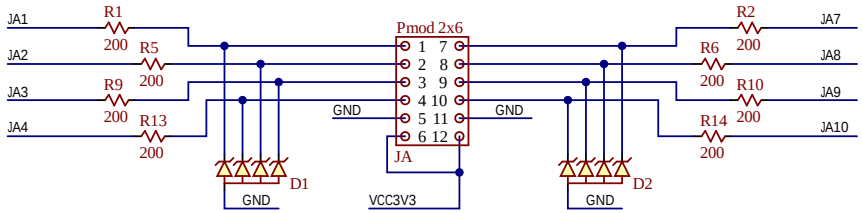

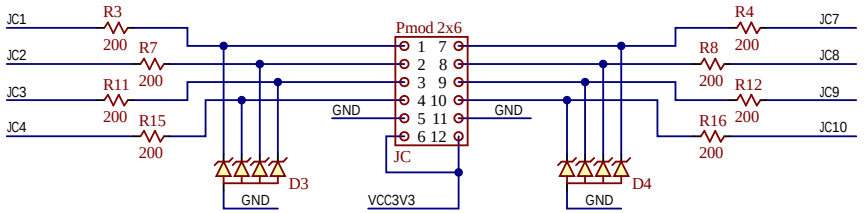

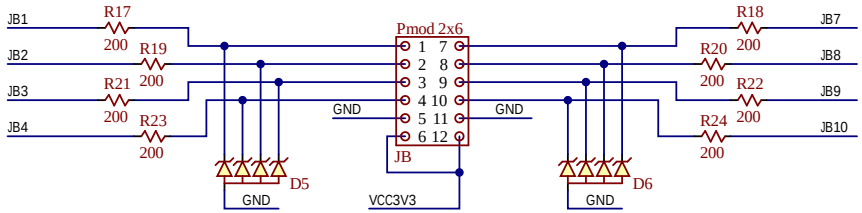

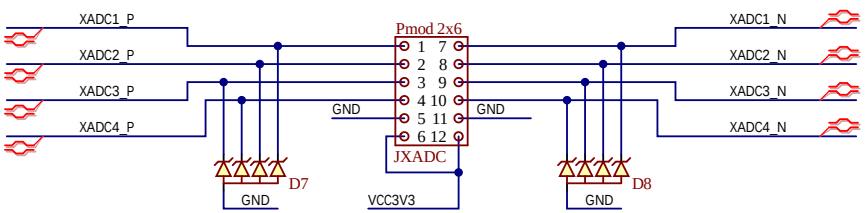

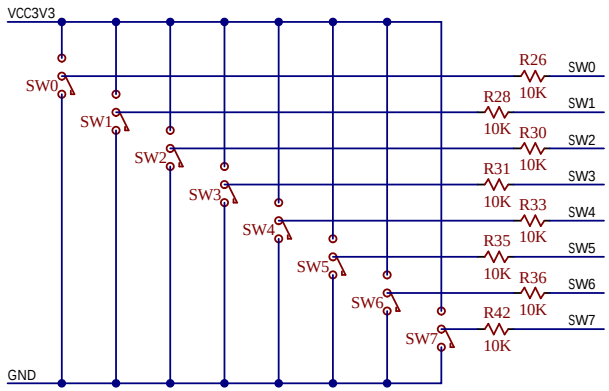

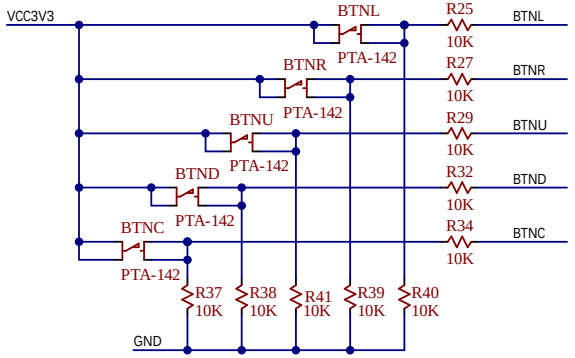

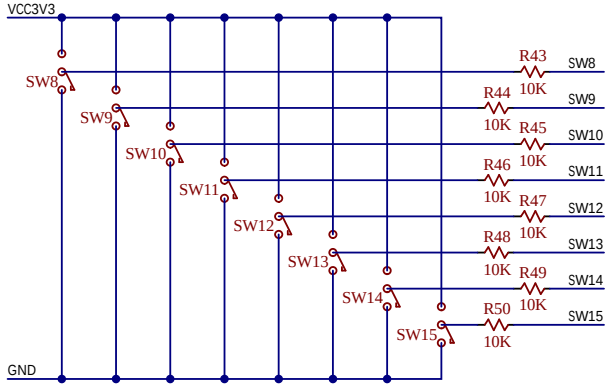

F1 Foot
F2 Foot
F3 Foot
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Title	Basys 3
Rev	D.1
Circuit	PMOD, I/O
Doc#	500-183
Engineer	MTA
Author	GMA
Date	2/5/2021
Sheet#	1 out of 8

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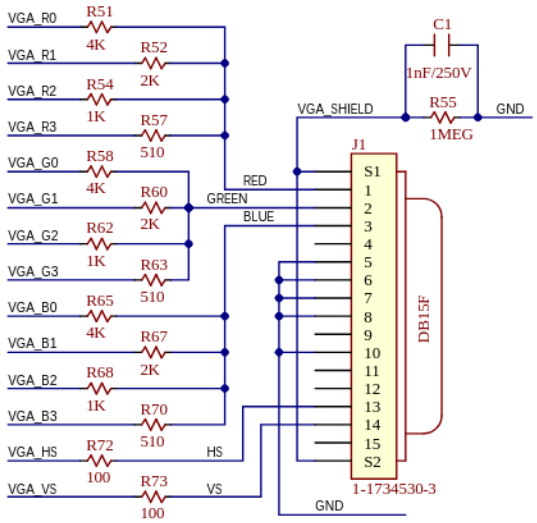

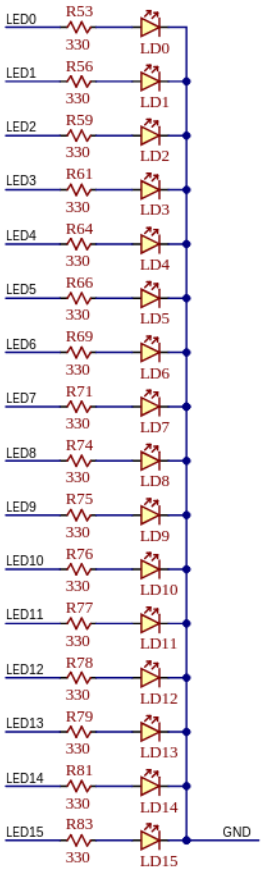

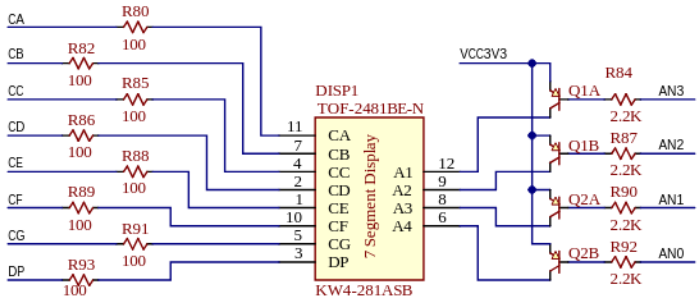

Title	Rev
Basys 3	D.1

Circuit	7 SEG, VGA, LEDs
Doc#	500-183
Engineer	MTA
Author	GMA
Date	2/5/2021
Sheet#	2 out of 8

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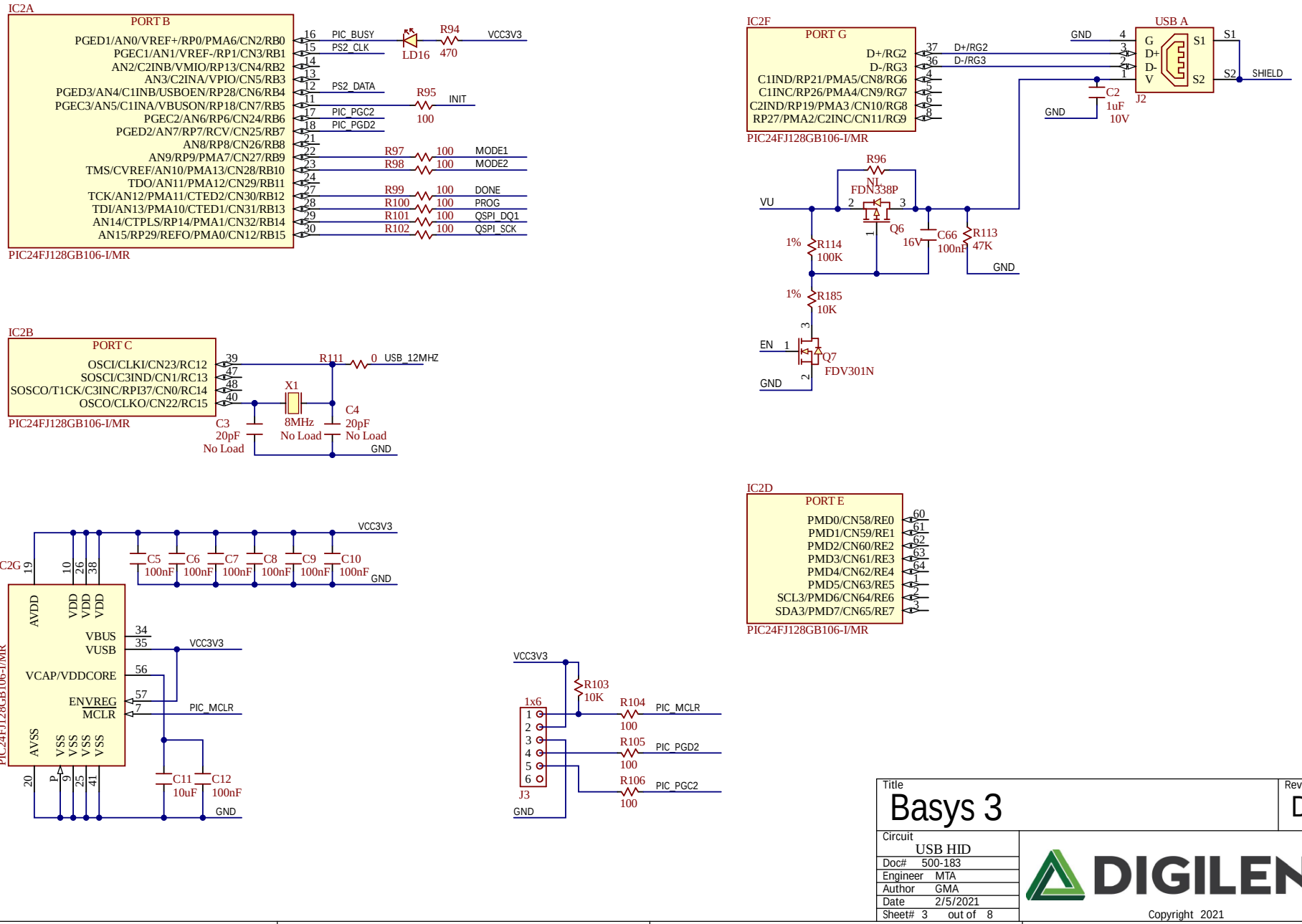
IC2A
PORT B
PGED1/AN0/VREF+/RP0/PMA6/CN2/RB0
PGEC1/AN1/VREF-/RP1/CN3/RB1
AN2/C2INB/VMIO/RP13/CN4/RB2
AN3/C2INA/VPIO/CN5/RB3
PGED3/AN4/C1INB/USBOEN/RP28/CN6/RB4
PGEC3/AN5/C1INA/VBUSON/RP18/CN7/RB5
PGEC2/AN6/RP6/CN24/RB6
PGED2/AN7/RP7/RCV/CN25/RB7
AN8/RP8/CN26/RB8
AN9/RP9/PMA7/CN27/RB9
TMS/CVREF/AN10/PMA13/CN28/RB10
TDO/AN11/PMA12/CN29/RB11
TCK/AN12/PMA11/CTED2/CN30/RB12
TDI/AN13/PMA10/CTED1/CN31/RB13
AN14/CTPLS/RP14/PMA1/CN32/RB14
AN15/RP29/REFO/PMA0/CN12/RB15
PIC_BUSY
PS2_CLK
PS2_DATA
PIC_PGC2
PIC_PGD2
LD16
R94
470
VCC3V3
R95
100
INIT
R97
R98
R99
R100
R101
R102
MODE1
MODE2
DONE
PROG
QSPI_DQ1
QSPI_SCK
PIC24FJ128GB106-I/MR
IC2F
PORT G
D+/RG2
D-/RG3
C1IND/RP21/PMA5/CN8/RG6
C1INC/RP26/PMA4/CN9/RG7
C2IND/RP19/PMA3/CN10/RG8
RP27/PMA2/C2INC/CN11/RG9
PIC24FJ128GB106-I/MR
USB A
GND
G
D+
D-
V
S1
S2
SHIELD
J2
C2
1uF
10V
R96
NL
FDN338P
Q6
VU
1%
R114
100K
C66
16V
100nF
R113
47K
R185
10K
EN
Q7
FDV301N
IC2B
PORT C
OSCI/CLKI/CN23/RC12
SOSCI/C3IND/CN1/RC13
SOSCO/T1CK/C3INC/RPI37/CN0/RC14
OSCO/CLKO/CN22/RC15
PIC24FJ128GB106-I/MR
R111
0
USB_12MHZ
X1
8MHz
C3
20pF
No Load
C4
20pF
No Load
IC2D
PORT E
PMD0/CN58/RE0
PMD1/CN59/RE1
PMD2/CN60/RE2
PMD3/CN61/RE3
PMD4/CN62/RE4
PMD5/CN63/RE5
SCL3/PMD6/CN64/RE6
SDA3/PMD7/CN65/RE7
PIC24FJ128GB106-I/MR
IC2G
PIC24FJ128GB106-I/MR
AVDD
VDD
VDD
VDD
VBUS
VUSB
VCAP/VDDCORE
ENVREG
MCLR
AVSS
VSS
VSS
VSS
VSS
VCC3V3
C5
C6
C7
C8
C9
C10
100nF
GND
PIC_MCLR
C11
10uF
C12
100nF
J3
1x6
R103
10K
R104
R105
R106
PIC_MCLR
PIC_PGD2
PIC_PGC2
100
Title
Basys 3
Rev
D.1
Circuit
USB HID
Doc# 500-183
Engineer MTA
Author GMA
Date 2/5/2021
Sheet# 3 out of 8
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Title	Basys 3
Rev	D.1
Circuit	USB PROG/UART
Doc#	500-183
Engineer	MTA
Author	GMA
Date	2/5/2021
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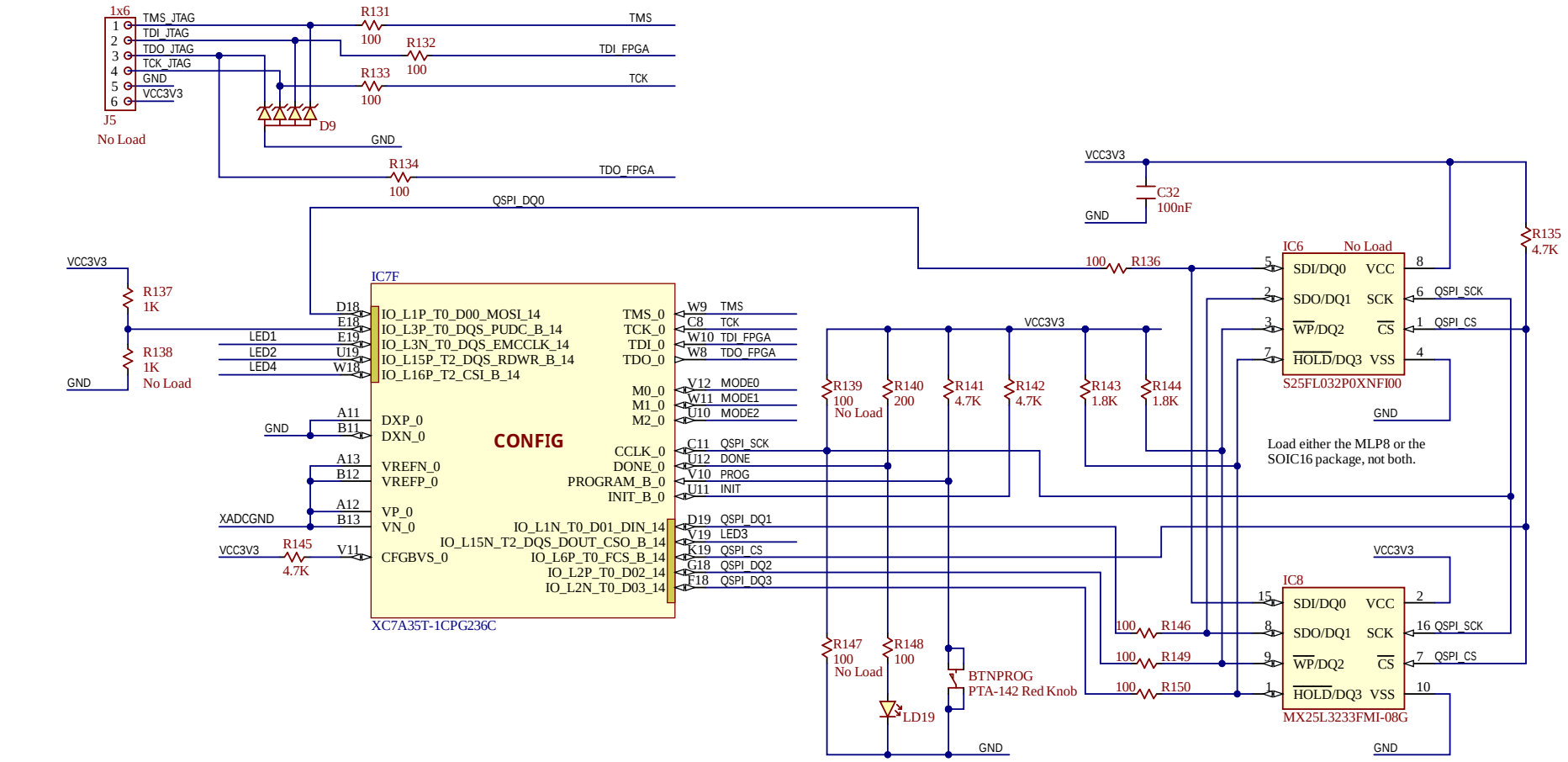

Title	Basys 3
Rev	D.1
Circuit	CONFIG, SPI FLASH
Doc#	500-183
Engineer	MTA
Author	GMA
Date	2/5/2021
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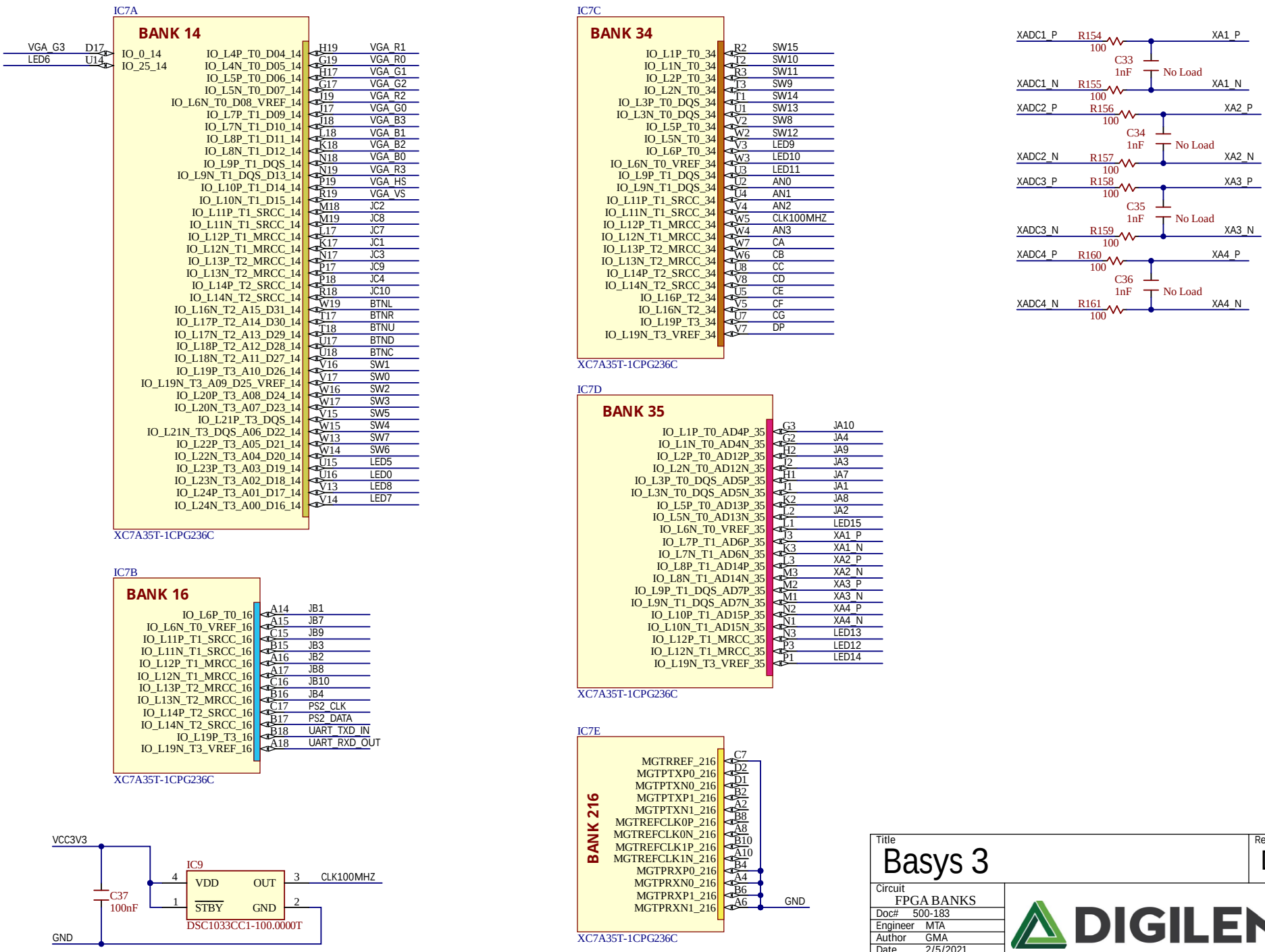
IC7A
BANK 14
VGA_G3 D17
LED6 U14
IO_0_14
IO_25_14
IO_L4P_T0_D04_14 H19 VGA_R1
IO_L4N_T0_D05_14 G19 VGA_R0
IO_L5P_T0_D06_14 H17 VGA_G1
IO_L5N_T0_D07_14 G17 VGA_G2
IO_L6N_T0_D08_VREF_14 J19 VGA_R2
IO_L7P_T1_D09_14 J17 VGA_G0
IO_L7N_T1_D10_14 J18 VGA_B3
IO_L8P_T1_D11_14 L18 VGA_B1
IO_L8N_T1_D12_14 K18 VGA_B2
IO_L9P_T1_DQS_14 N18 VGA_B0
IO_L9N_T1_DQS_D13_14 N19 VGA_R3
IO_L10P_T1_D14_14 P19 VGA_HS
IO_L10N_T1_D15_14 R19 VGA_VS
IO_L11P_T1_SRCC_14 M18 JC2
IO_L11N_T1_SRCC_14 M19 JC8
IO_L12P_T1_MRCC_14 L17 JC7
IO_L12N_T1_MRCC_14 K17 JC1
IO_L13P_T2_MRCC_14 N17 JC3
IO_L13N_T2_MRCC_14 P17 JC9
IO_L14P_T2_SRCC_14 P18 JC4
IO_L14N_T2_SRCC_14 R18 JC10
IO_L16N_T2_A15_D31_14 W19 BTNL
IO_L17P_T2_A14_D30_14 T17 BTNR
IO_L17N_T2_A13_D29_14 T18 BTNU
IO_L18P_T2_A12_D28_14 U17 BTND
IO_L18N_T2_A11_D27_14 U18 BTNC
IO_L19P_T3_A10_D26_14 V16 SW1
IO_L19N_T3_A09_D25_VREF_14 V17 SW0
IO_L20P_T3_A08_D24_14 W16 SW2
IO_L20N_T3_A07_D23_14 W17 SW3
IO_L21P_T3_DQS_14 V15 SW5
IO_L21N_T3_DQS_A06_D22_14 W15 SW4
IO_L22P_T3_A05_D21_14 W13 SW7
IO_L22N_T3_A04_D20_14 W14 SW6
IO_L23P_T3_A03_D19_14 U15 LED5
IO_L23N_T3_A02_D18_14 U16 LED0
IO_L24P_T3_A01_D17_14 V13 LED8
IO_L24N_T3_A00_D16_14 V14 LED7
XC7A35T-1CPG236C
IC7B
BANK 16
IO_L6P_T0_16 A14 JB1
IO_L6N_T0_VREF_16 A15 JB7
IO_L11P_T1_SRCC_16 C15 JB9
IO_L11N_T1_SRCC_16 B15 JB3
IO_L12P_T1_MRCC_16 A16 JB2
IO_L12N_T1_MRCC_16 A17 JB8
IO_L13P_T2_MRCC_16 C16 JB10
IO_L13N_T2_MRCC_16 B16 JB4
IO_L14P_T2_SRCC_16 C17 PS2_CLK
IO_L14N_T2_SRCC_16 B17 PS2_DATA
IO_L19P_T3_16 B18 UART_TXD_IN
IO_L19N_T3_VREF_16 A18 UART_RXD_OUT
XC7A35T-1CPG236C
VCC3V3
C37
100nF
GND
IC9
VDD
OUT
STBY
GND
4
3
1
2
CLK100MHZ
DSC1033CC1-100.0000T
IC7C
BANK 34
IO_L1P_T0_34 R2 SW15
IO_L1N_T0_34 T2 SW10
IO_L2P_T0_34 R3 SW11
IO_L2N_T0_34 T3 SW9
IO_L3P_T0_DQS_34 T1 SW14
IO_L3N_T0_DQS_34 U1 SW13
IO_L5P_T0_34 V2 SW8
IO_L5N_T0_34 W2 SW12
IO_L6P_T0_34 V3 LED9
IO_L6N_T0_VREF_34 W3 LED10
IO_L9P_T1_DQS_34 J3 LED11
IO_L9N_T1_DQS_34 J2 AN0
IO_L11P_T1_SRCC_34 U4 AN1
IO_L11N_T1_SRCC_34 V4 AN2
IO_L12P_T1_MRCC_34 W5 CLK100MHZ
IO_L12N_T1_MRCC_34 W4 AN3
IO_L13P_T2_MRCC_34 W7 CA
IO_L13N_T2_MRCC_34 W6 CB
IO_L14P_T2_SRCC_34 U8 CC
IO_L14N_T2_SRCC_34 V8 CD
IO_L16P_T2_34 U5 CE
IO_L16N_T2_34 V5 CF
IO_L19P_T3_34 U7 CG
IO_L19N_T3_VREF_34 V7 DP
XC7A35T-1CPG236C
IC7D
BANK 35
IO_L1P_T0_AD4P_35 G3 JA10
IO_L1N_T0_AD4N_35 G2 JA4
IO_L2P_T0_AD12P_35 H2 JA9
IO_L2N_T0_AD12N_35 J2 JA3
IO_L3P_T0_DQS_AD5P_35 H1 JA7
IO_L3N_T0_DQS_AD5N_35 J1 JA1
IO_L5P_T0_AD13P_35 K2 JA8
IO_L5N_T0_AD13N_35 L2 JA2
IO_L6N_T0_VREF_35 L1 LED15
IO_L7P_T1_AD6P_35 J3 XA1_P
IO_L7N_T1_AD6N_35 K3 XA1_N
IO_L8P_T1_AD14P_35 L3 XA2_P
IO_L8N_T1_AD14N_35 M3 XA2_N
IO_L9P_T1_DQS_AD7P_35 M2 XA3_P
IO_L9N_T1_DQS_AD7N_35 M1 XA3_N
IO_L10P_T1_AD15P_35 N2 XA4_P
IO_L10N_T1_AD15N_35 N1 XA4_N
IO_L12P_T1_MRCC_35 N3 LED13
IO_L12N_T1_MRCC_35 P3 LED12
IO_L19N_T3_VREF_35 P1 LED14
XC7A35T-1CPG236C
IC7E
BANK 216
MGTRREF_216 C7
MGTPTXP0_216 D2
MGTPTXN0_216 D1
MGTPTXP1_216 B2
MGTPTXN1_216 A2
MGTREFCLK0P_216 B8
MGTREFCLK0N_216 A8
MGTREFCLK1P_216 B10
MGTREFCLK1N_216 A10
MGTPRXP0_216 B4
MGTPRXN0_216 A4
MGTPRXP1_216 B6
MGTPRXN1_216 A6
GND
XC7A35T-1CPG236C
XADC1_P R154 100 XA1_P
C33 1nF No Load
XADC1_N R155 100 XA1_N
XADC2_P R156 100 XA2_P
C34 1nF No Load
XADC2_N R157 100 XA2_N
XADC3_P R158 100 XA3_P
C35 1nF No Load
XADC3_N R159 100 XA3_N
XADC4_P R160 100 XA4_P
C36 1nF No Load
XADC4_N R161 100 XA4_N
Title
Basys 3
Rev
D.1
Circuit
FPGA BANKS
Doc# 500-183
Engineer MTA
Author GMA
Date 2/5/2021
Sheet# 6 out of 8
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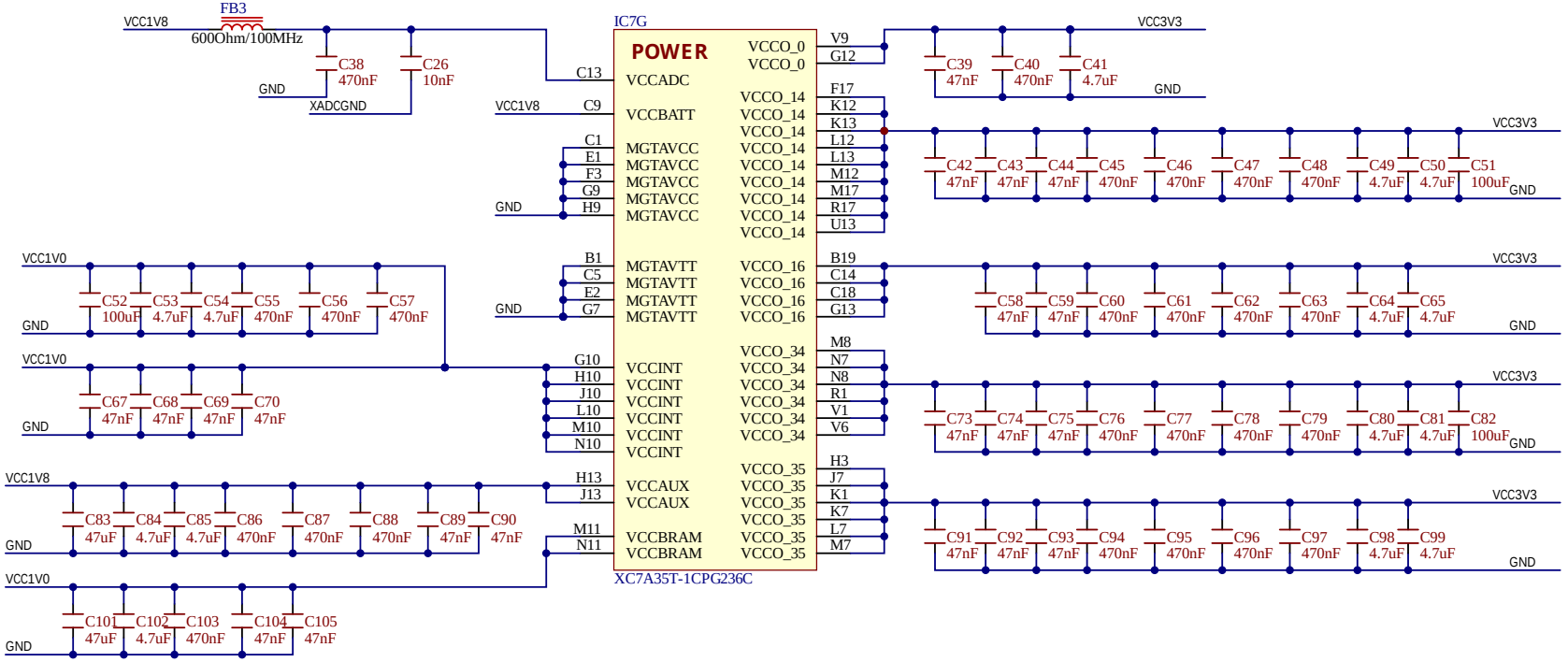

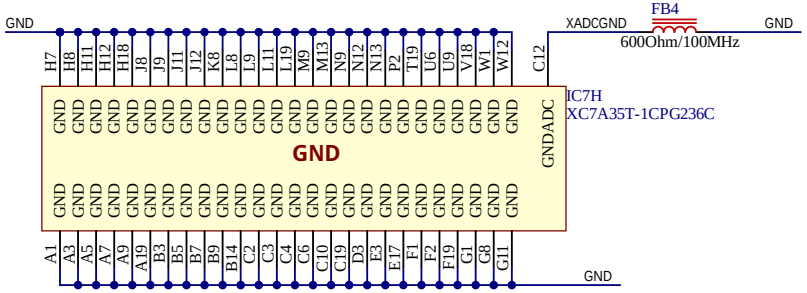

Title	Basys 3
Rev	D.1
Circuit	FPGA POWER
Doc#	500-183
Engineer	MTA
Author	GMA
Date	2/5/2021
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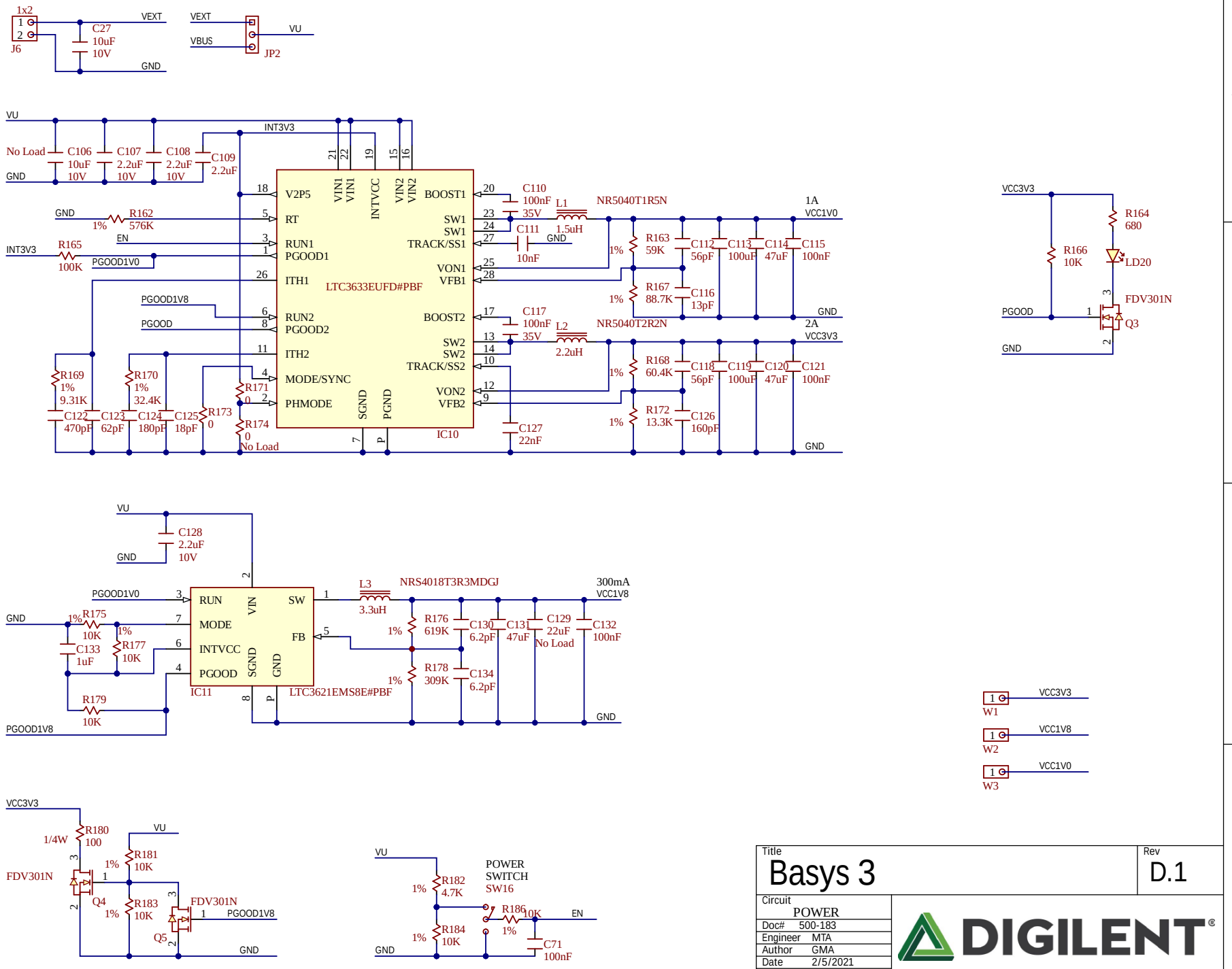
1x2
J6
C27
10uF
10V
VEXT
GND
VEXT
VBUS
VU
JP2
VU
INT3V3
No Load
C106
10uF
10V
C107
2.2uF
10V
C108
2.2uF
10V
C109
2.2uF
GND
R162
1%
576K
EN
INT3V3
R165
100K
PGOOD1V0
PGOOD1V8
PGOOD
R169
1%
9.31K
R170
1%
32.4K
C122
470pF
C123
62pF
C124
180pF
C125
18pF
R173
0
R171
0
R174
0
No Load
V2P5
RT
RUN1
PGOOD1
ITH1
RUN2
PGOOD2
ITH2
MODE/SYNC
PHMODE
VIN1
VIN1
INTVCC
VIN2
VIN2
SGND
PGND
BOOST1
SW1
SW1
TRACK/SS1
VON1
VFB1
BOOST2
SW2
SW2
TRACK/SS2
VON2
VFB2
LTC3633EUFD#PBF
IC10
C110
100nF
35V
L1
1.5uH
NR5040T1R5N
1A
VCC1V0
C111
10nF
GND
R163
59K
C112
56pF
C113
100uF
C114
47uF
C115
100nF
R167
88.7K
C116
13pF
C117
100nF
35V
L2
2.2uH
NR5040T2R2N
2A
VCC3V3
R168
60.4K
C118
56pF
C119
100uF
C120
47uF
C121
100nF
R172
13.3K
C126
160pF
C127
22nF
GND
VCC3V3
R164
680
R166
10K
LD20
PGOOD
FDV301N
Q3
GND
VU
C128
2.2uF
10V
GND
PGOOD1V0
R175
1%
10K
C133
1uF
R177
10K
R179
10K
PGOOD1V8
RUN
MODE
INTVCC
PGOOD
VIN
SGND
GND
SW
FB
IC11
LTC3621EMS8E#PBF
L3
3.3uH
NRS4018T3R3MDGJ
300mA
VCC1V8
R176
619K
C130
6.2pF
C131
47uF
C129
22uF
No Load
C132
100nF
R178
309K
C134
6.2pF
GND
W1
VCC3V3
W2
VCC1V8
W3
VCC1V0
VCC3V3
R180
1/4W
100
FDV301N
VU
R181
10K
Q4
R183
10K
FDV301N
Q5
PGOOD1V8
GND
VU
R182
4.7K
POWER
SWITCH
SW16
R186
10K
EN
R184
10K
C71
100nF
GND
Title
Basys 3
Rev
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Engineer MTA
Author GMA
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