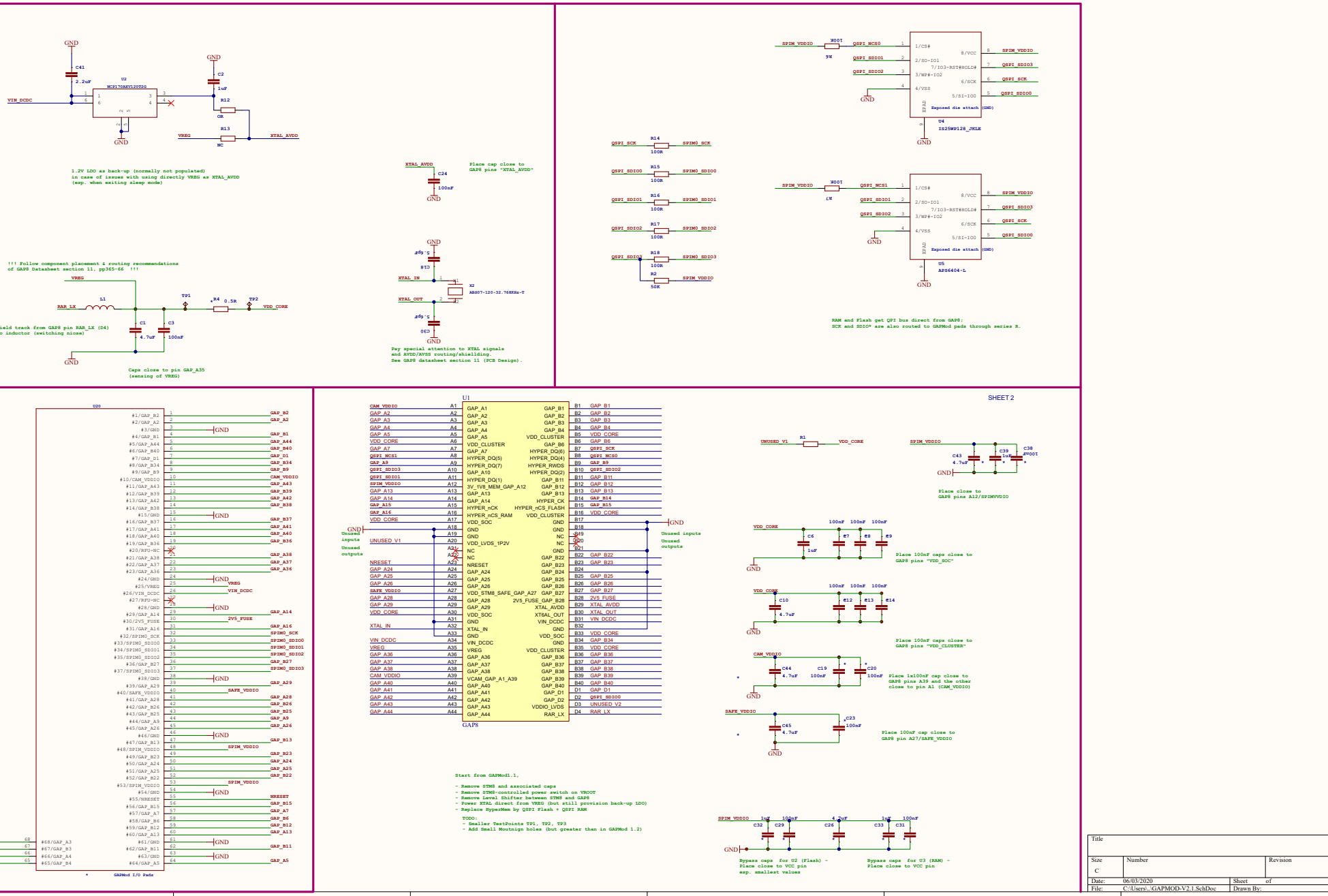
GND
C41
2.2uF
U2
MCP170AXY12072G
VIN_DCDC
C2
1uF
R12
0R
R13
NC
VREG
XTAL_AVDD
1.2V LDO as back-up (normally not populated)
in case of issues with using directly VREG as XTAL_AVDD
(esp. when exiting sleep mode)
!!! Follow component placement & routing recommendations
of GAP8 Datasheet section 11, pp365-66 !!!
VREG
L1
RAR_LX
TP1
R4
0.5R
TP2
VDD_CORE
C1
4.7uF
C3
100nF
Shield track from GAP8 pin RAR_LX (D4)
to inductor (switching noise)
Caps close to pin GAP_A35
(sensing of VREG)
XTAL_AVDD
C24
100nF
Place cap close to
GAP8 pins "XTAL_AVDD"
C29
5.6pF
XTAL_IN
X2
ABS07-120-32.768KHz-T
XTAL_OUT
C30
5.6pF
Pay special attention to XTAL signals
and AVDD/AVSS routing/shielding.
See GAP8 datasheet section 11 (PCB Design).
QSPI_SCK
R14
100R
SPIM0_SCK
QSPI_SDIO0
R15
SPIM0_SDIO0
QSPI_SDIO1
R16
SPIM0_SDIO1
QSPI_SDIO2
R17
SPIM0_SDIO2
QSPI_SDIO3
R18
SPIM0_SDIO3
R2
50K
SPIM_VDDIO
SPIM_VDDIO
W25Q
9M
QSPI_NCS0
QSPI_SDIO1
QSPI_SDIO2
1/CS#
2/SO-IO1
3/WP#-IO2
4/VSS
8/VCC
7/IO3-RST#HOLD#
6/SCK
5/SI-IO0
EPAD
Exposed die attach (GND)
U4
IS25WP128_JKLE
SPIM_VDDIO
W25Q
1M
QSPI_NCS1
QSPI_SDIO1
QSPI_SDIO2
SPIM_VDDIO
QSPI_SDIO3
QSPI_SCK
QSPI_SDIO0
U5
APS6404-L
RAM and Flash get QPI bus direct from GAP8;
SCK and SDIO* are also routed to GAPMod pads through series R.
SHEET 1
U20
#1/GAP_B2
#2/GAP_A2
#3/GND
#4/GAP_B1
#5/GAP_A44
#6/GAP_B40
#7/GAP_D1
#8/GAP_B34
#9/GAP_B9
#10/CAM_VDDIO
#11/GAP_A43
#12/GAP_B39
#13/GAP_A42
#14/GAP_B38
#15/GND
#16/GAP_B37
#17/GAP_A41
#18/GAP_A40
#19/GAP_B36
#20/RFU-NC
#21/GAP_A38
#22/GAP_A37
#23/GAP_A36
#24/GND
#25/VREG
#26/VIN_DCDC
#27/RFU-NC
#28/GND
#29/GAP_A14
#30/2V5_FUSE
#31/GAP_A16
#32/SPIM0_SCK
#33/SPIM0_SDIO0
#34/SPIM0_SDIO1
#35/SPIM0_SDIO2
#36/GAP_B27
#37/SPIM0_SDIO3
#38/GND
#39/GAP_A29
#40/SAFE_VDDIO
#41/GAP_A28
#42/GAP_B26
#43/GAP_B25
#44/GAP_A9
#45/GAP_A26
#46/GND
#47/GAP_B13
#48/SPIM_VDDIO
#49/GAP_B23
#50/GAP_A24
#51/GAP_A25
#52/GAP_B22
#53/SPIM_VDDIO
#54/GND
#55/NRESET
#56/GAP_B15
#57/GAP_A7
#58/GAP_B6
#59/GAP_B12
#60/GAP_A13
#61/GND
#62/GAP_B11
#63/GND
#64/GAP_A5
#65/GAP_B4
#66/GAP_A4
#67/GAP_B3
#68/GAP_A3
GAPMod I/O Pads
U1
CAM_VDDIO
GAP_A2
GAP_A3
GAP_A4
GAP_A5
VDD_CORE
GAP_A7
QSPI_NCS1
GAP_A9
QSPI_SDIO3
QSPI_SDIO1
SPIM_VDDIO
GAP_A13
GAP_A14
GAP_A15
GAP_A16
VDD_CORE
GND
Unused inputs
Unused outputs
UNUSED_V1
NRESET
GAP_A24
GAP_A25
GAP_A26
SAFE_VDDIO
GAP_A28
GAP_A29
VDD_CORE
XTAL_IN
VIN_DCDC
VREG
GAP_A36
GAP_A37
GAP_A38
CAM_VDDIO
GAP_A40
GAP_A41
GAP_A42
GAP_A43
GAP_A44
GAP_A1
GAP_A2
GAP_A3
GAP_A4
GAP_A5
VDD_CLUSTER
GAP_A7
HYPER_DQ(5)
HYPER_DQ(7)
GAP_A10
HYPER_DQ(1)
3V_1V8_MEM_GAP_A12
GAP_A13
GAP_A14
HYPER_nCK
HYPER_nCS_RAM
VDD_SOC
GND
GND
VDD_LVDS_1P2V
NC
NC
NRESET
GAP_A24
GAP_A25
GAP_A26
VDD_STM8_SAFE_GAP_A27
GAP_A28
GAP_A29
VDD_SOC
GND
XTAL_IN
GND
VIN_DCDC
VREG
GAP_A36
GAP_A37
GAP_A38
VCAM_GAP_A1_A39
GAP_A40
GAP_A41
GAP_A42
GAP_A43
GAP_A44
GAP_B1
GAP_B2
GAP_B3
GAP_B4
VDD_CORE
GAP_B6
HYPER_DQ(6)
HYPER_DQ(4)
HYPER_RWDS
HYPER_DQ(2)
GAP_B11
GAP_B12
GAP_B13
HYPER_CK
HYPER_nCS_FLASH
VDD_CLUSTER
GND
GND
NC
NC
GND
GAP_B22
GAP_B23
GAP_B24
GAP_B25
GAP_B26
GAP_B27
2V5_FUSE_GAP_B28
XTAL_AVDD
XT6AL_OUT
VIN_DCDC
GND
VDD_CLUSTER
GAP_B36
GAP_B37
GAP_B38
GAP_B39
GAP_B40
GAP_D1
GAP_D2
VDDIO_LVDS
RAR_LX
GAP_B1
GAP_B2
GAP_B3
GAP_B4
VDD_CORE
GAP_B6
QSPI_SCK
QSPI_NCS0
GAP_B9
QSPI_SDIO2
GAP_B11
GAP_B12
GAP_B13
GAP_B14
GAP_B15
VDD_CORE
GND
Unused inputs
Unused outputs
GAP_B22
GAP_B23
GAP_B24
GAP_B25
GAP_B26
GAP_B27
2V5_FUSE
XTAL_AVDD
XTAL_OUT
VIN_DCDC
GND
VDD_CORE
GAP_B34
VDD_CORE
GAP_B36
GAP_B37
GAP_B38
GAP_B39
GAP_B40
GAP_D1
QSPI_SDIO0
UNUSED_V2
RAR_LX
GAP8
Start from GAPMod1.1,
- Remove STM8 and associated caps
- Remove STM8-controlled power switch on VBOOT
- Remove Level Shifter between STM8 and GAP8
- Power XTAL direct from VREG (but still provision back-up LDO)
- Replace HyperMem by QSPI Flash + QSPI RAM
TODO:
- Smaller TestPoints TP1, TP2, TP3
- Add Small Mountign holes (but greater than in GAPMod 1.2)
SHEET 2
UNUSED_V1
R1
VDD_CORE
SPIM_VDDIO
C43
4.7uF
C39
1uF
C38
47*00T
Place close to
GAP8 pins A12/SPIMVVDIO
VDD_CORE
C6
1uF
C7
C8
C9
100nF
Place 100nF caps close to
GAP8 pins "VDD_SOC"
VDD_CORE
C10
4.7uF
C12
C13
C14
Place 100nF caps close to
GAP8 pins "VDD_CLUSTER"
CAM_VDDIO
C44
4.7uF
C19
C20
100nF
Place 1x100nF cap close to
GAP8 pins A39 and the other
close to pin A1 (CAM_VDDIO)
SAFE_VDDIO
C45
4.7uF
C23
100nF
Place 100nF cap close to
GAP8 pin A27/SAFE_VDDIO
SPIM_VDDIO
C32
1uF
C29
100nF
C26
4.7uF
C33
1uF
C31
100nF
Bypass caps for U2 (Flash) -
Place close to VCC pin
esp. smallest values
Bypass caps for U3 (RAM) -
Place close to VCC pin
Title
Size
C
Number
Revision
Date: 06/03/2020
Sheet of
File: C:\Users\..\GAPMOD-V2.1.SchDoc
Drawn By: