

| WP as Prerequisites | Author of TSC |
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Technical Safety Concept

Objective

The objectives of this document are:

- to establish hardware architectural design to implement the hardware safety requirements and non-safety requirements;
- to allocate hardware safety requirements on hardware elements

Application Diagram

Architecture

Refined Architecture by TSC

Operating Mode Transition Diagram

Analysis Scope Summery

Die

| Block Name | SPF w/o SM? | SM | MPF? | Another FM Leading to MPF | SM |
|---------------|-------------|----|------|---------------------------|----|
| CS | SPF | | / | | |
| VCC_FS | / | | MPF | | |
| BG2 | / | | MPF | | |
| IREF2 | / | | MPF | | |
| VAA_CMP | / | | MPF | | |
| VDD_CMP | / | | MPF | | |
| CP_CMP | / | | MPF | | |
| AGND_OW_DET | / | | MPF | | |
| HCLK | SPF | | / | | |
| LCLK | SPF | | / | | |
| CP | SPF | | / | | |
| DRIVE | SPF | | / | | |
| VAA | SPF | | / | | |
| VDD | SPF | | / | | |
| RST_REG | / | | / | | |
| CBFET | / | | MPF | | |
| TMODE | SPF | | / | | |
| IO_INTER | SPF | | / | | |
| IO_BUF | SPF | | / | | |
| I2C_MAS_INTER | SPF | | / | | |
| 3P3 | / | | MPF | | |
| RX_INTER | / | | / | | |
| TX_INTER | SPF | | / | | |
| 10K_20UA_PUPD | / | | MPF | | |

| Block Name | SPF w/o SM? | SM | MPF? | Another FM Leading to MPF | SM |
|----------------|-------------|----|------|---------------------------|----|
| SEQ | SPF | | / | | |
| REFP | SPF | | / | | |
| IREF | SPF | | / | | |
| BE | / | | MPF | | |
| JOT_DAC | / | | MPF | | |
| BG | SPF | | / | | |
| VPTAT | / | | MPF | | |
| TREF | SPF | | / | | |
| MUX_HV | SPF | | / | | |
| MUX_LV | SPF | | / | | |
| ADC_LV_SHT | SPF | | / | | |
| ADC_MODU | SPF | | / | | |
| AUX_MUX_HV | / | | MPF | | |
| AUX_MUX_LV | / | | MPF | | |
| AUX_ADC_LV_SHT | / | | MPF | | |
| AUX_ADC_MODU | / | | MPF | | |
| JOT_CMP | / | | MPF | | |
| COMS_VCM | SPF | | / | | |
| COMS_TONE_RX | SPF | | / | | |
| COMS_TX | SPF | | / | | |
| COMN_VCM | SPF | | / | | |
| COMN_TONE_RX | SPF | | / | | |
| COMN_TX | SPF | | / | | |
| PING_DET | / | | MPF | | |
| UART_EN_LOGIC | SPF | | / | | |
| CB_CTRL | / | | MPF | | |
| CKGEN | SPF | | / | | |
| RECLK_COMP | SPF | | / | | |
| RST_GEN | SPF | | / | | |
| CH_SEL_GEN | SPF | | / | | |

| Block Name | SPF w/o SM? | SM | MPF? | Another FM Leading to MPF | SM |
|------------------|-------------|----|------|---------------------------|----|
| ADC_LOGIC | SPF | | / | | |
| CALIBRATION | SPF | | / | | |
| DLPF | SPF | | / | | |
| AUX_CH_SEL_GEN | / | | MPF | | |
| AUX_ADC_LOGIC | / | | MPF | | |
| AUX_CALIBRATION | / | | MPF | | |
| AUX_DLPF | / | | MPF | | |
| CYC_WAKE | SPF | | / | | |
| OVUV_OTUT_CMP | / | | MPF | | |
| GAP_CMP | / | | MPF | | |
| C_OW_CTRL | / | | MPF | | |
| I2C_MAS | SPF | | / | | |
| MTP_INTER | SPF | | / | | |
| MTP | SPF | | / | | |
| LOW_BYTE_BUF | SPF | | / | | |
| CONF_REG | SPF | | / | | |
| FUNC_CTRL_REG | SPF | | / | | |
| SM_CTRL_REG | / | | MPF | | |
| MTP_REG | SPF | | / | | |
| TM_REG | SPF | | / | | |
| FLT_BIT_REG | / | | MPF | | |
| FLT_SUM | / | | MPF | | |
| FLT_LOGIC | / | | MPF | | |
| CONF_REG_CRC_DET | / | | MPF | | |
| MTP_REG_CRC_DET | / | | MPF | | |
| CMP_BIST_CTRL | / | | MPF | | |
| TM_KEY_CHECK | / | | MPF | | |
| TRIM_LOGIC | SPF | | / | | |
| SOFT_RSTB_sync | SPF | | / | | |
| TO_SLP_sync | SPF | | / | | |

| Block Name | SPF w/o SM? | SM | MPF? | Another FM Leading to MPF | SM |
|---------------|-------------|----|------|---------------------------|----|
| TONE_CTRL | SPF | | / | | |
| DS_BASIC | SPF | | / | | |
| UART_BASIC | / | | MPF | | |
| FCOMM_DET | / | | MPF | | |
| FCOMM_GEN | / | | MPF | | |
| COMM_CTRL | SPF | | / | | |
| FR_CRC_DET | / | | MPF | | |
| FR_CRC_GEN | / | | MPF | | |
| FRAME_COUNTER | / | | MPF | | |
| COMM_TO | SPF | | / | | |

Pin and Bonding

| Pin Name | FM | SPF w/o SM? | SM | MPF? | Another FM Leading to MPF | SM |
|----------|----------------|-------------|-------|------|--|---------------------|
| BAT | Open | SPF | SM009 | / | / | / |
| | Short to left | / | / | / | / | / |
| | Short to right | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to PACK- | SPF | SM009 | / | / | / |
| | Short to PACK+ | / | / | / | / | / |
| B18 | Open | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |

| Pin Name | FM | SPF w/o SM? | SM | MPF? | Another FM Leading to MPF | SM |
|----------|----------------|-------------|-------|------|--|---------------------|
| | Short to left | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to right | SPF | SM018 | / | / | / |
| | Short to PACK- | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to PACK+ | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| C18 | Open | SPF | SM016 | / | / | / |
| | Short to left | SPF | SM018 | / | / | / |
| | Short to right | SPF | SM001 | / | / | / |
| | Short to PACK- | SPF | SM001 | / | / | / |
| | Short to PACK+ | SPF | SM001 | / | / | / |
| B17 | Open | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to left | SPF | SM001 | / | / | / |
| | Short to right | SPF | SM018 | / | / | / |
| | Short to PACK- | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to PACK+ | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |

| Pin Name | FM | SPF w/o SM? | SM | MPF? | Another FM Leading to MPF | SM |
|----------|----------------|-------------|-------|------|--|---------------------|
| C17 | Open | SPF | SM016 | / | / | / |
| | Short to left | SPF | SM018 | / | / | / |
| | Short to right | SPF | SM001 | / | / | / |
| | Short to PACK- | SPF | SM001 | / | / | / |
| | Short to PACK+ | SPF | SM001 | / | / | / |
| B16 | Open | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to left | SPF | SM001 | / | / | / |
| | Short to right | SPF | SM018 | / | / | / |
| | Short to PACK- | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to PACK+ | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| C16 | Open | SPF | SM016 | / | / | / |
| | Short to left | SPF | SM018 | / | / | / |
| | Short to right | SPF | SM001 | / | / | / |
| | Short to PACK- | SPF | SM001 | / | / | / |
| | Short to PACK+ | SPF | SM001 | / | / | / |
| B15 | Open | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |

| Pin Name | FM | SPF w/o SM? | SM | MPF? | Another FM Leading to MPF | SM |
|----------|----------------|-------------|-------|------|--|---------------------|
| | Short to left | SPF | SM001 | / | / | / |
| | Short to right | SPF | SM018 | / | / | / |
| | Short to PACK- | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to PACK+ | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| C15 | Open | SPF | SM016 | / | / | / |
| | Short to left | SPF | SM018 | / | / | / |
| | Short to right | SPF | SM001 | / | / | / |
| | Short to PACK- | SPF | SM001 | / | / | / |
| | Short to PACK+ | SPF | SM001 | / | / | / |
| B14 | Open | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to left | SPF | SM001 | / | / | / |
| | Short to right | SPF | SM018 | / | / | / |
| | Short to PACK- | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to PACK+ | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| C14 | Open | SPF | SM016 | / | / | / |

| Pin Name | FM | SPF w/o SM? | SM | MPF? | Another FM Leading to MPF | SM |
|----------|----------------|-------------|-------|------|--|---------------------|
| | Short to left | SPF | SM018 | / | / | / |
| | Short to right | SPF | SM001 | / | / | / |
| | Short to PACK- | SPF | SM001 | / | / | / |
| | Short to PACK+ | SPF | SM001 | / | / | / |
| B13 | Open | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to left | SPF | SM001 | / | / | / |
| | Short to right | SPF | SM018 | / | / | / |
| | Short to PACK- | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to PACK+ | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| C13 | Open | SPF | SM016 | / | / | / |
| | Short to left | SPF | SM018 | / | / | / |
| | Short to right | SPF | SM001 | / | / | / |
| | Short to PACK- | SPF | SM001 | / | / | / |
| | Short to PACK+ | SPF | SM001 | / | / | / |
| B12 | Open | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |

| Pin Name | FM | SPF w/o SM? | SM | MPF? | Another FM Leading to MPF | SM |
|----------|----------------|-------------|-------|------|--|---------------------|
| | Short to left | SPF | SM001 | / | / | / |
| | Short to right | SPF | SM018 | / | / | / |
| | Short to PACK- | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to PACK+ | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| C12 | Open | SPF | SM016 | / | / | / |
| | Short to left | SPF | SM018 | / | / | / |
| | Short to right | SPF | SM001 | / | / | / |
| | Short to PACK- | SPF | SM001 | / | / | / |
| | Short to PACK+ | SPF | SM001 | / | / | / |
| B11 | Open | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to left | SPF | SM001 | / | / | / |
| | Short to right | / | / | / | / | / |
| | Short to PACK- | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to PACK+ | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| C11 | Open | SPF | SM016 | / | / | / |

| Pin Name | FM | SPF w/o SM? | SM | MPF? | Another FM Leading to MPF | SM |
|----------|----------------|-------------|-------|------|--|---------------------|
| | Short to left | / | / | / | / | / |
| | Short to right | SPF | SM001 | / | / | / |
| | Short to PACK- | SPF | SM001 | / | / | / |
| | Short to PACK+ | SPF | SM001 | / | / | / |
| B10 | Open | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to left | SPF | SM001 | / | / | / |
| | Short to right | SPF | SM018 | / | / | / |
| | Short to PACK- | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to PACK+ | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| C10 | Open | SPF | SM016 | / | / | / |
| | Short to left | SPF | SM018 | / | / | / |
| | Short to right | / | / | / | / | / |
| | Short to PACK- | SPF | SM001 | / | / | / |
| | Short to PACK+ | SPF | SM001 | / | / | / |
| NC | Open | / | / | / | / | / |
| | Short to left | / | / | / | / | / |

| Pin Name | FM | SPF w/o SM? | SM | MPF? | Another FM Leading to MPF | SM |
|----------|----------------|-------------|-------|------|--|---------------------|
| | Short to right | / | / | / | / | / |
| | Short to PACK- | / | / | / | / | / |
| | Short to PACK+ | / | / | / | / | / |
| B9 | Open | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to left | / | / | / | / | / |
| | Short to right | SPF | SM018 | / | / | / |
| | Short to PACK- | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to PACK+ | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| C9 | Open | SPF | SM016 | / | / | / |
| | Short to left | SPF | SM018 | / | / | / |
| | Short to right | SPF | SM001 | / | / | / |
| | Short to PACK- | SPF | SM001 | / | / | / |
| | Short to PACK+ | SPF | SM001 | / | / | / |
| B8 | Open | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to left | SPF | SM001 | / | / | / |

| Pin Name | FM | SPF w/o SM? | SM | MPF? | Another FM Leading to MPF | SM |
|----------|----------------|-------------|-------|------|--|---------------------|
| | Short to right | SPF | SM018 | / | / | / |
| | Short to PACK- | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to PACK+ | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| C8 | Open | SPF | SM016 | / | / | / |
| | Short to left | SPF | SM018 | / | / | / |
| | Short to right | SPF | SM001 | / | / | / |
| | Short to PACK- | SPF | SM001 | / | / | / |
| | Short to PACK+ | SPF | SM001 | / | / | / |
| B7 | Open | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to left | SPF | SM001 | / | / | / |
| | Short to right | SPF | SM018 | / | / | / |
| | Short to PACK- | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to PACK+ | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| C7 | Open | SPF | SM016 | / | / | / |
| | Short to left | SPF | SM018 | / | / | / |

| Pin Name | FM | SPF w/o SM? | SM | MPF? | Another FM Leading to MPF | SM |
|----------|----------------|-------------|-------|------|--|---------------------|
| | Short to right | SPF | SM001 | / | / | / |
| | Short to PACK- | SPF | SM001 | / | / | / |
| | Short to PACK+ | SPF | SM001 | / | / | / |
| B6 | Open | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to left | SPF | SM001 | / | / | / |
| | Short to right | SPF | SM018 | / | / | / |
| | Short to PACK- | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to PACK+ | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| C6 | Open | SPF | SM016 | / | / | / |
| | Short to left | SPF | SM018 | / | / | / |
| | Short to right | SPF | SM001 | / | / | / |
| | Short to PACK- | SPF | SM001 | / | / | / |
| | Short to PACK+ | SPF | SM001 | / | / | / |
| B5 | Open | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to left | SPF | SM001 | / | / | / |

| Pin Name | FM | SPF w/o SM? | SM | MPF? | Another FM Leading to MPF | SM |
|----------|----------------|-------------|-------|------|--|---------------------|
| | Short to right | SPF | SM018 | / | / | / |
| | Short to PACK- | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to PACK+ | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| C5 | Open | SPF | SM016 | / | / | / |
| | Short to left | SPF | SM018 | / | / | / |
| | Short to right | SPF | SM001 | / | / | / |
| | Short to PACK- | SPF | SM001 | / | / | / |
| | Short to PACK+ | SPF | SM001 | / | / | / |
| B4 | Open | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to left | SPF | SM001 | / | / | / |
| | Short to right | SPF | SM018 | / | / | / |
| | Short to PACK- | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to PACK+ | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| C4 | Open | SPF | SM016 | / | / | / |
| | Short to left | SPF | SM018 | / | / | / |

| Pin Name | FM | SPF w/o SM? | SM | MPF? | Another FM Leading to MPF | SM |
|----------|----------------|-------------|-------|------|--|---------------------|
| | Short to right | / | / | / | / | / |
| | Short to PACK- | SPF | SM001 | / | / | / |
| | Short to PACK+ | SPF | SM001 | / | / | / |
| B3 | Open | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to left | / | / | / | / | / |
| | Short to right | SPF | SM018 | / | / | / |
| | Short to PACK- | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to PACK+ | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| C3 | Open | SPF | SM016 | / | / | / |
| | Short to left | SPF | SM018 | / | / | / |
| | Short to right | SPF | SM001 | / | / | / |
| | Short to PACK- | SPF | SM001 | / | / | / |
| | Short to PACK+ | SPF | SM001 | / | / | / |
| B2 | Open | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to left | SPF | SM001 | / | / | / |

| Pin Name | FM | SPF w/o SM? | SM | MPF? | Another FM Leading to MPF | SM |
|----------|----------------|-------------|-------|------|--|---------------------|
| | Short to right | SPF | SM018 | / | / | / |
| | Short to PACK- | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to PACK+ | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| C2 | Open | SPF | SM016 | / | / | / |
| | Short to left | SPF | SM018 | / | / | / |
| | Short to right | SPF | SM001 | / | / | / |
| | Short to PACK- | SPF | SM001 | / | / | / |
| | Short to PACK+ | SPF | SM001 | / | / | / |
| B1 | Open | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to left | SPF | SM001 | / | / | / |
| | Short to right | SPF | SM018 | / | / | / |
| | Short to PACK- | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to PACK+ | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| C1 | Open | SPF | SM016 | / | / | / |
| | Short to left | SPF | SM018 | / | / | / |

| Pin Name | FM | SPF w/o SM? | SM | MPF? | Another FM Leading to MPF | SM |
|----------|----------------|-------------|-------|------|--|---------------------|
| | Short to right | SPF | SM001 | / | / | / |
| | Short to PACK- | SPF | SM001 | / | / | / |
| | Short to PACK+ | SPF | SM001 | / | / | / |
| B0 | Open | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to left | SPF | SM001 | / | / | / |
| | Short to right | SPF | SM018 | / | / | / |
| | Short to PACK- | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| | Short to PACK+ | / | / | MPF | MAIN_ADC, GAP_CMP, FLT_BIT_REG, FCOMM_DET, FCOMM_GEN | SM001, SM021, SM025 |
| C0 | Open | SPF | SM016 | / | / | / |
| | Short to left | SPF | SM018 | / | / | / |
| | Short to right | SPF | SM001 | / | / | / |
| | Short to PACK- | SPF | SM001 | / | / | / |
| | Short to PACK+ | SPF | SM001 | / | / | / |
| VDD | Open | SPF | SM006 | / | / | / |
| | Short to left | SPF | SM001 | / | / | / |
| | Short to right | SPF | SM006 | / | / | / |

| Pin Name | FM | SPF w/o SM? | SM | MPF? | Another FM Leading to MPF | SM |
|----------|----------------|-------------|-------|------|---------------------------|----|
| | Short to PACK- | SPF | SM006 | / | / | / |
| | Short to PACK+ | SPF | SM006 | / | / | / |
| AGND | Open | SPF | SM014 | / | / | / |
| | A_Open | SPF | SM014 | / | / | / |
| | D_Open | SPF | SM009 | / | / | / |
| | Short to left | SPF | SM006 | / | / | / |
| | Short to right | SPF | SM010 | / | / | / |
| | Short to PACK- | / | / | / | / | / |
| | Short to PACK+ | SPF | SM009 | / | / | / |
| COMS+ | Open | SPF | SM010 | / | / | / |
| | Short to left | SPF | SM010 | / | / | / |
| | Short to right | SPF | SM009 | / | / | / |
| | Short to PACK- | SPF | SM010 | / | / | / |
| | Short to PACK+ | SPF | SM010 | / | / | / |
| COMS- | Open | SPF | SM010 | / | / | / |
| | Short to left | SPF | SM009 | / | / | / |
| | Short to right | SPF | SM011 | / | / | / |
| | Short to PACK- | SPF | SM010 | / | / | / |
| | Short to PACK+ | SPF | SM010 | / | / | / |
| COMN- | Open | SPF | SM011 | / | / | / |

| Pin Name | FM | SPF w/o SM? | SM | MPF? | Another FM Leading to MPF | SM |
|----------|----------------|-------------|-------|------|---------------------------|----|
| | Short to left | SPF | SM011 | / | / | / |
| | Short to right | SPF | SM009 | / | / | / |
| | Short to PACK- | SPF | SM011 | / | / | / |
| | Short to PACK+ | SPF | SM011 | / | / | / |
| COMN+ | Open | SPF | SM011 | / | / | / |
| | Short to left | SPF | SM009 | / | / | / |
| | Short to right | SPF | SM009 | / | / | / |
| | Short to PACK- | SPF | SM011 | / | / | / |
| | Short to PACK+ | SPF | SM011 | / | / | / |
| DRIVE | Open | SPF | SM009 | / | / | / |
| | Short to left | SPF | SM009 | / | / | / |
| | Short to right | SPF | SM009 | / | / | / |
| | Short to PACK- | SPF | SM009 | / | / | / |
| | Short to PACK+ | / | / | / | / | / |
| LDOIN | Open | SPF | SM009 | / | / | / |
| | Short to left | SPF | SM009 | / | / | / |
| | Short to right | / | / | / | / | / |
| | Short to PACK- | SPF | SM009 | / | / | / |
| | Short to PACK+ | / | / | / | / | / |

| Pin Name | FM | SPF w/o SM? | SM | MPF? | Another FM Leading to MPF | SM |
|----------|----------------|-------------|-------|------|---------------------------|----|
| VAA | Open | SPF | SM005 | / | / | / |
| | Short to left | / | / | / | / | / |
| | Short to right | SPF | SM007 | / | / | / |
| | Short to PACK- | SPF | SM009 | / | / | / |
| | Short to PACK+ | SPF | SM005 | / | / | / |
| TREF | Open | / | / | / | / | / |
| | Short to left | SPF | SM007 | / | / | / |
| | Short to right | / | / | / | / | / |
| | Short to PACK- | SPF | SM007 | / | / | / |
| | Short to PACK+ | SPF | SM007 | / | / | / |
| GPIO0 | Open | SPF | SM017 | / | / | / |
| | Short to left | / | / | / | / | / |
| | Short to right | SPF | SM019 | / | / | / |
| | Short to PACK- | / | / | / | / | / |
| | Short to PACK+ | / | / | / | / | / |
| GPIO1 | Open | SPF | SM017 | / | / | / |
| | Short to left | SPF | SM019 | / | / | / |
| | Short to right | SPF | SM019 | / | / | / |
| | Short to PACK- | / | / | / | / | / |

| Pin Name | FM | SPF w/o SM? | SM | MPF? | Another FM Leading to MPF | SM |
|----------|----------------|-------------|-------|------|---------------------------|----|
| | Short to PACK+ | / | / | / | / | / |
| GPIO2 | Open | SPF | SM017 | / | / | / |
| | Short to left | SPF | SM019 | / | / | / |
| | Short to right | SPF | SM007 | / | / | / |
| | Short to PACK- | / | / | / | / | / |
| | Short to PACK+ | / | / | / | / | / |
| REFP | Open | SPF | SM007 | / | / | / |
| | Short to left | SPF | SM007 | / | / | / |
| | Short to right | SPF | SM007 | / | / | / |
| | Short to PACK- | / | / | / | / | / |
| | Short to PACK+ | / | / | / | / | / |
| REFN | Open | SPF | SM007 | / | / | / |
| | Short to left | SPF | SM007 | / | / | / |
| | Short to right | / | / | / | / | / |
| | Short to PACK- | / | / | / | / | / |
| | Short to PACK+ | SPF | SM007 | / | / | / |
| GPIO11 | Open | SPF | SM017 | / | / | / |
| | Short to left | / | / | / | / | / |
| | Short to right | SPF | SM019 | / | / | / |

| Pin Name | FM | SPF w/o SM? | SM | MPF? | Another FM Leading to MPF | SM |
|----------|----------------|-------------|-------|------|---------------------------|----|
| | Short to PACK- | / | / | / | / | / |
| | Short to PACK+ | / | / | / | / | / |
| GPIO10 | Open | SPF | SM017 | / | / | / |
| | Short to left | SPF | SM019 | / | / | / |
| | Short to right | SPF | SM019 | / | / | / |
| | Short to PACK- | / | / | / | / | / |
| | Short to PACK+ | / | / | / | / | / |
| GPIO9 | Open | SPF | SM017 | / | / | / |
| | Short to left | SPF | SM019 | / | / | / |
| | Short to right | SPF | SM019 | / | / | / |
| | Short to PACK- | / | / | / | / | / |
| | Short to PACK+ | / | / | / | / | / |
| GPIO7 | Open | SPF | SM017 | / | / | / |
| | Short to left | SPF | SM019 | / | / | / |
| | Short to right | SPF | SM019 | / | / | / |
| | Short to PACK- | / | / | / | / | / |
| | Short to PACK+ | / | / | / | / | / |
| GPIO6 | Open | SPF | SM017 | / | / | / |
| | Short to left | SPF | SM019 | / | / | / |

| Pin Name | FM | SPF w/o SM? | SM | MPF? | Another FM Leading to MPF | SM |
|----------|----------------|-------------|-------|------|---------------------------|----|
| | Short to right | SPF | SM019 | / | / | / |
| | Short to PACK- | / | / | / | / | / |
| | Short to PACK+ | / | / | / | / | / |
| GPIO5 | Open | SPF | SM017 | / | / | / |
| | Short to left | SPF | SM019 | / | / | / |
| | Short to right | SPF | SM019 | / | / | / |
| | Short to PACK- | / | / | / | / | / |
| | Short to PACK+ | / | / | / | / | / |
| GPIO4 | Open | SPF | SM017 | / | / | / |
| | Short to left | SPF | SM019 | / | / | / |
| | Short to right | SPF | SM019 | / | / | / |
| | Short to PACK- | / | / | / | / | / |
| | Short to PACK+ | / | / | / | / | / |
| GPIO3 | Open | SPF | SM017 | / | / | / |
| | Short to left | SPF | SM019 | / | / | / |
| | Short to right | / | / | / | / | / |
| | Short to PACK- | / | / | / | / | / |
| | Short to PACK+ | / | / | / | / | / |

Peripherals

| Peripheral Name | FM | SPF w/o SM? | SM | MPF? | Another FM Leading to MPF | SM |
|----------------------------------|-------|-------------------|-------|------|---------------------------------|-------|
| DBAT | Open | / | / | 1% | PACK+ connector open | / |
| | Short | | | | | |
| RBAT | Open | SPF | | / | | / |
| | Short | | | | | |
| | x0.5 | | | | | |
| | x2 | | | | | |
| CBAT | Open | SPFSPF | | // | | // |
| | Short | | | | | |
| | x0.5 | | | | | |
| | x2 | | | | | |
| Battery Cell Connector(Cn/Bn) | Open | | | | | |
| Battery Cell Connector(PACK+) | Open | SPF | SM009 | MPF | SM009 | SM009 |
| Battery Cell Connector(PACK-) | | | | | | |
| RC | Open | SPFSPF | | // | | // |
| | Short | | | | | |
| | x0.5 | | | | | |
| | x2 | | | | | |
| CC | Open | SPFSPF | | // | | // |
| | Short | | | | | |
| | x0.5 | | | | | |
| | x2 | | | | | |
| RB | Open | SPF/ | / | /MPF | | / |
| | Short | | | | | |
| | x0.5 | | | | | |
| | x2 | | | | | |
| CB | Open | SPF/ | / | /MPF | | / |

| Peripheral Name | FM | SPF w/o SM? | SM | MPF? | Another FM Leading to MPF | SM |
|--------------------------|-------|-------------------|----|------|---------------------------------|----|
| | Short | | | | | |
| | x0.5 | | | | | |
| | x2 | | | | | |
| CVDD | Open | SPFSPF | | // | | // |
| | Short | | | | | |
| | x0.5 | | | | | |
| | x2 | | | | | |
| COMN/S+/- Peripherals | Open | SPFSPF | | // | | // |
| | Short | | | | | |
| | x0.5 | | | | | |
| | x2 | | | | | |
| RPACK | Open | SPFSPF | | // | | // |
| | Short | | | | | |
| | x0.5 | | | | | |
| | x2 | | | | | |
| CPACK | Open | SPFSPF | | // | | // |
| | Short | | | | | |
| | x0.5 | | | | | |
| | x2 | | | | | |
| RBJT | Open | SPFSPF | | // | | // |
| | Short | | | | | |
| | x0.5 | | | | | |
| | x2 | | | | | |
| BJT | Open | | | | | |
| | Short | | | | | |
| | x0.5 | | | | | |
| | x2 | | | | | |
| CLDOIN | Open | SPFSPF | | // | | // |

| Peripheral Name | FM | SPF w/o SM? | SM | MPF? | Another FM Leading to MPF | SM |
|---------------------------------|-------|-------------------|----|------|---------------------------------|----|
| | Short | | | | | |
| | x0.5 | | | | | |
| | x2 | | | | | |
| CVAA | Open | SPFSPF | | // | | // |
| | Short | | | | | |
| | x0.5 | | | | | |
| | x2 | | | | | |
| CTREF | Open | SPFSPF | | // | | // |
| | Short | | | | | |
| | x0.5 | | | | | |
| | x2 | | | | | |
| CREFP | Open | SPFSPF | | // | | // |
| | Short | | | | | |
| | x0.5 | | | | | |
| | x2 | | | | | |
| Temperature Sensor Connector | Open | | | | | |
| RGPIO Divider | Open | SPFSPF | | // | | // |
| | Short | | | | | |
| | x0.5 | | | | | |
| | x2 | | | | | |