**User’s Guide für 16-Kanal-EKG Platine:**

Spannungsversorgung:

|  |  |
| --- | --- |
| PSK3 Connector Pin | Voltage |
| 1 | +15V |
| 2 | -15V |
| 3 | +5V |
| 4 | -3.3V |
| 5 | GND |

|  |  |
| --- | --- |
| Voltage | Value |
| DVDD | +1.8V |
| AVDD | +1.5V |
| AVSS | -1.5V |

Digital Signals from MSP:

|  |  |  |
| --- | --- | --- |
| Signal | J1 Pin Number | Signal |
| 5V (false) | |  |  | | --- | --- | | 1 | 2 | | 3.3V (false) |
| (P6.5) | |  |  | | --- | --- | | 3 | 4 | | GND |
| (P3.4) | |  |  | | --- | --- | | 5 | 6 | | (P6.0) |
| (P3.3) | |  |  | | --- | --- | | 7 | 8 | | (P6.1) |
| (P1.6) DRDY2 | |  |  | | --- | --- | | 9 | 10 | | (P6.2) |
| (P6.6) | |  |  | | --- | --- | | 11 | 12 | | (P6.3) |
| (P3.2) SCLK | |  |  | | --- | --- | | 13 | 14 | | (P6.4) |
| (P2.7) CS2 | |  |  | | --- | --- | | 15 | 16 | | (P7.0) |
| (P4.2) | |  |  | | --- | --- | | 17 | 18 | | (P3.6) |
| (P4.1) | |  |  | | --- | --- | | 19 | 20 | | (P3.5) |

|  |  |  |
| --- | --- | --- |
| Signal | J2 Pin Number | Signal |
| (P2.5) START | |  |  | | --- | --- | | 1 | 2 | | GND |
| (P2.4) /RESET | |  |  | | --- | --- | | 3 | 4 | | (P2.0) I/O1 |
| (P1.5) DRDY1 | |  |  | | --- | --- | | 5 | 6 | | (P2.2) I/O2 |
| (P1.4) CS1 | |  |  | | --- | --- | | 7 | 8 | | (P7.4) I/O3 |
| (P1.3) I/O4 | |  |  | | --- | --- | | 9 | 10 | | RST |
| (P1.2) I/O5 | |  |  | | --- | --- | | 11 | 12 | | (P3.0) MOSI |
| (P4.3) I/O6 | |  |  | | --- | --- | | 13 | 14 | | (P3.1) MISO |
| (P4.0) I/O7 | |  |  | | --- | --- | | 15 | 16 | | (P2.6) GPIO14 |
| (P3.7) I/O8 | |  |  | | --- | --- | | 17 | 18 | | (P2.3) GPIO24 |
| (P8.2) CLKSEL | |  |  | | --- | --- | | 19 | 20 | | (P8.1) EXT\_CLK |

Analog Output Signals:

|  |  |  |
| --- | --- | --- |
| Signal | J3 Pin Number | Signal |
| GPIO11 | |  |  | | --- | --- | | 1 | 2 | | GPIO23 |
| GPIO12 | |  |  | | --- | --- | | 3 | 4 | | GPIO22 |
| GPIO13 | |  |  | | --- | --- | | 5 | 6 | | GPIO21 |
| AGND | |  |  | | --- | --- | | 7 | 8 | | DAISY\_IN |
| AGND | |  |  | | --- | --- | | 9 | 10 | | /PWDN |
|  | |  |  | | --- | --- | | 11 | 12 | | PACEOUT21 |
| PACEOUT12 | |  |  | | --- | --- | | 13 | 14 | | PACEOUT22 |
| PACEOUT11 | |  |  | | --- | --- | | 15 | 16 | | AGND |

Test Points:

|  |  |
| --- | --- |
| Number | Voltage |
| TP1 | VREFP (not available) |
| TP2 | VREFP (not available) |
| TP3 | AGND |
| TP4 | AGND |
| TP5 | AGND |
| TP6 | AGND |
| TP7 | 5V |
| TP8 | 3.3V |

Jumper Configuration:

|  |  |  |
| --- | --- | --- |
| Jumper | Function | Settings |
| JP1 | RLD feedback |  |
| JP2 | Connect MSP to external 3.3V supply |  |
| JP3 | Connect MSP to external 5 V supply |  |
| JP4 | PWDN source Chip1 | **Open:** PWDN pin controlled from J3 header (pulled up to DVDD)  **Installed:** Device is powered down (pulled down to AGND) |
| JP5 | PWDN source Chip2 | **Open:** PWDN pin controlled from J3 header (pulled up to DVDD)  **Installed:** Device is powered down (pulled down to AGND) |
| JP6 | ECG shield drive connected | **1-2:** ECG shield is grounded  **2-3:** ECG shield connected to buffer |
| JP7 | Wilson Central Terminal connection | **1-2:** WCT connected to JP12, 13, 14, 15, 16, 19  **2-3:** GND connected to JP12, 13, 14, 15, 16, 19 |
| JP8 | ECG shield drive buffer input (Header not installed) | **1-2:** ECG shield drive connected to RLDOUT  **2-3:** ECG shield drive connected to RLDINV |
| JP9 | CLK connection | **1-2:** CLK connected to OSC  **2-3:** CLK connected to MSP |
| JP10 | OSC enable | **1-2:** OSC enabled  **2-3:** OSC disabled |
| JP11 | CLKSEL source | **1-2:** External Master Clock  **2-3:** Internal Master Clock (CLKSEL controlled by J2 header, pulled up to DVDD) |
| JP12 | CH8- connection | **Open:** Channel input not connected  **Installed:** Channel input connected to WCT/GND (depending on JP7) |
|  | CH8+ connection | **Open:** Channel input not connected  **Installed:** Channel input connected to ECG\_V1 |
| JP13 | CH7- connection | **Open:** Channel input not connected  **Installed:** Channel input connected to WCT/GND (depending on JP7) |
|  | CH7+ connection | **Open:** Channel input not connected  **Installed:** Channel input connected to ECG\_V5 |
| JP14 | CH6- connection | **Open:** Channel input not connected  **Installed:** Channel input connected to WCT/GND (depending on JP7) |
|  | CH6+ connection | **Open:** Channel input not connected  **Installed:** Channel input connected to ECG\_V4 |
| JP15 | CH5- connection | **Open:** Channel input not connected  **Installed:** Channel input connected to WCT/GND (depending on JP7) |
|  | CH5+ connection | **Open:** Channel input not connected  **Installed:** Channel input connected to ECG\_V3 |
| JP16 | CH4- connection | **Open:** Channel input not connected  **Installed:** Channel input connected to WCT/GND (depending on JP7) |
|  | CH4+ connection | **Open:** Channel input not connected  **Installed:** Channel input connected to ECG\_V2 |
| JP17 | CH3- connection | **Open:** Channel input not connected  **Installed:** Channel input connected to ECG\_RA |
|  | CH3+ connection | **Open:** Channel input not connected  **Installed:** Channel input connected to ECG\_LL |
| JP18 | CH2- connection | **Open:** Channel input not connected  **Installed:** Channel input connected to ECG\_RA |
|  | CH2+ connection | **Open:** Channel input not connected  **Installed:** Channel input connected to ECG\_LA |
| JP19 | CH1- connection | **Open:** Channel input not connected  **Installed:** Channel input connected to WCT/GND (depending on JP7) |
|  | CH1+ connection | **Open:** Channel input not connected  **Installed:** Channel input connected to ECG\_V2 |