

iC-JX EVAL JX2D

EVALUATION BOARD DESCRIPTION



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ORDERING INFORMATION

| Type | Order Designation | Description Options |
|------------------|-------------------|--|
| Evaluation Board | iC-JX EVAL JX2D | iC-JX Evaluation Board ready to operate, accessible through GUI via USB including USB A-B cable |
| Software | iC-JX GUI | GUI software for Windows PC communication to iC-JX, program and read data see chapter EVALUATION SOFTWARE on page 6 for more information |

BOARD JX2D AND TERMINAL DESCRIPTION

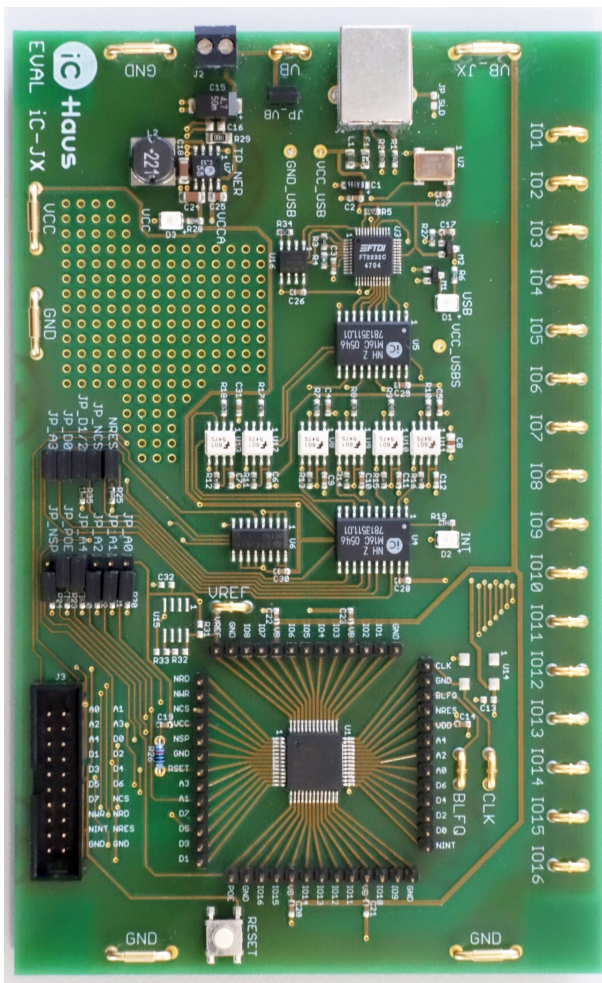


Figure 1: Component side (size 160 mm x 100 mm)

TERMINAL DESCRIPTION

| | |
|-------|--------------------------------------|
| J1 | USB Interface |
| J2 | VB Power Supply |
| J3 | iC-JX Control Interface |
| VB | External Supply Voltage I/O Stages |
| VB_JX | Supply Voltage I/O Stages 1... 16 |
| VCC | Supply Voltage analog 3... 5V |
| GND | |
| IO1 | I/O Stage 1 |
| IO2 | I/O Stage 2 |
| IO3 | I/O Stage 3 |
| IO4 | I/O Stage 4 |
| IO5 | I/O Stage 5 |
| IO6 | I/O Stage 6 |
| IO7 | I/O Stage 7 |
| IO8 | I/O Stage 8 |
| IO9 | I/O Stage 9 |
| IO10 | I/O Stage 10 |
| IO11 | I/O Stage 11 |
| IO12 | I/O Stage 12 |
| IO13 | I/O Stage 13 |
| IO14 | I/O Stage 14 |
| IO15 | I/O Stage 15 |
| IO16 | I/O Stage 16 |
| CLK | Clock(optional) |
| BLFQ | Blink Frequency |
| VREF | External Voltage Reference(optional) |

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CIRCUIT DESCRIPTION

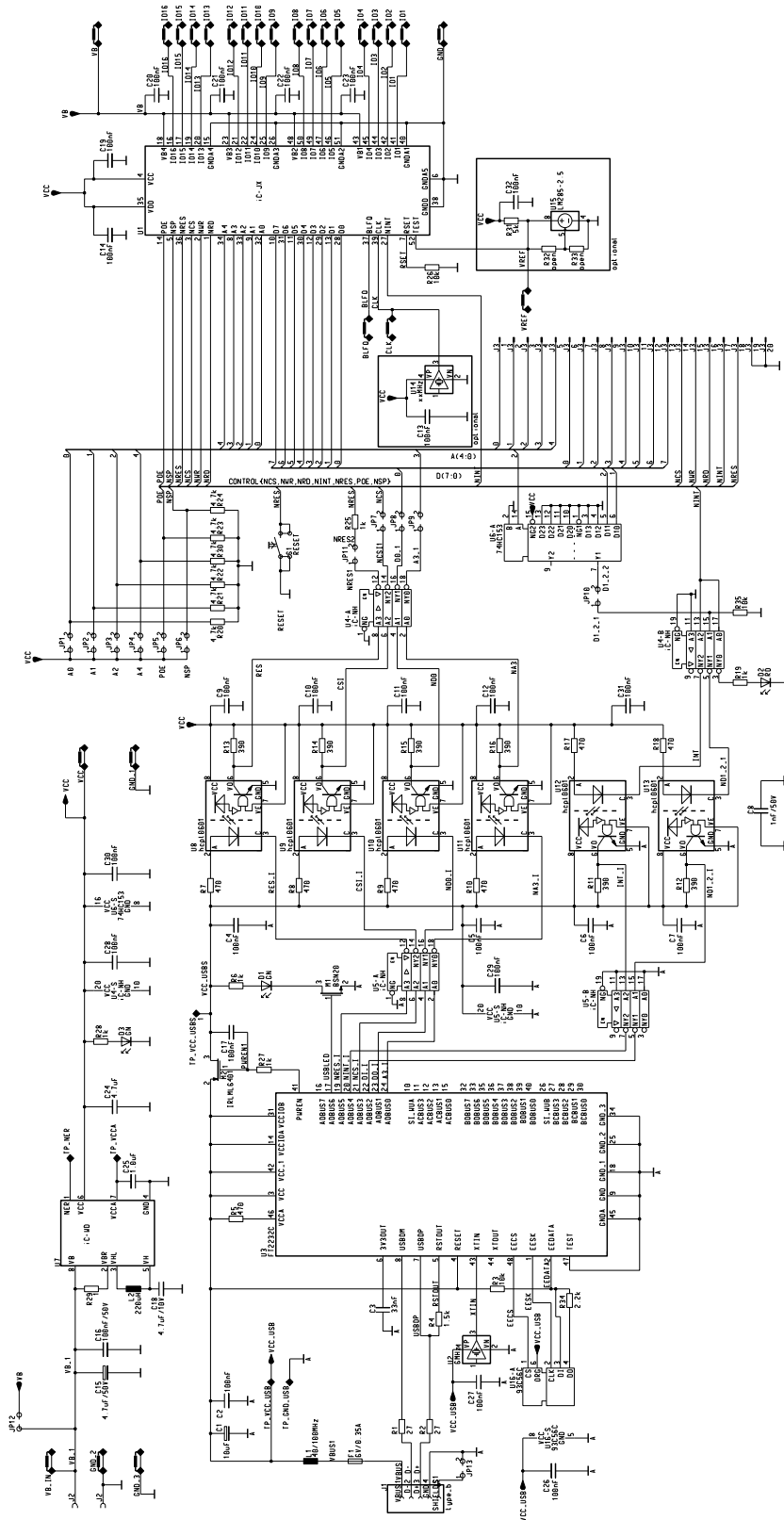


Figure 2: Circuit diagram

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ASSEMBLY PART LIST

| Device | Value (typical) | Comment |
|--|----------------------|------------------------------|
| C8 | 1 nF | X7R 10 V, tolerance 10 % |
| C2, C4, C5, C6, C7, C9, C10, C11, C12, C13, C14, C16, C17, C19, C20, C21, C22, C23, C26, C28, C29, C30, C31, C32 | 100 nF | X7R 10 V, tolerance 10 % |
| C3 | 33 nF | X7R 10 V, tolerance 10 % |
| C25, | 1 μ F | X7R 10 V, tolerance 10 % |
| C15, C18, C24, | 4.7 μ F | X7R 10 V, tolerance 10 % |
| C1, | 10 μ F | Tantal 10 V, tolerance 20 % |
| D1, D3 | LED | Indicator LED (green) |
| D2 | LED | Indicator LED (red) |
| F1 | 350 mA / 6 V | Fuse |
| J1 | USB B | USB input connector |
| J2 | AKL059-2 | |
| J3 | WSL20 | |
| S1-4 | WSL29 | |
| JP_1 ... 13 | SLLP10972G | Jumper 2 pins |
| L1 | 40 Ω /100 MHz | Ferrit bead |
| R29 | 1 Ω | tolerance 5 % |
| R1, R2 | 27 Ω | tolerance 5 % |
| R11, R12, R13, R14, R15, R16 | 390 Ω | tolerance 5 % |
| R5, R7, R8, R9, R10, R17, R18 | 470 Ω | tolerance 5 % |
| R6, R19, R27, R28 | 1 k Ω | tolerance 5 % |
| R4, R25 | 1.5 k Ω | tolerance 5 % |
| R34 | 2.2 k Ω | tolerance 5 % |
| R20, R21, R22, R23, R24, R30 | 4.7 k Ω | tolerance 5 % |
| R31 | 5.0 k Ω | tolerance 5 % (optional) |
| R3, R26, R35 | 10 k Ω | tolerance 5 % |
| R32, R33 | tbd k Ω | not present (optional) |
| U1 | iC-JX | |
| U2 | 6 MHz | Crystal oscillator |
| U3 | FT2232 | USB interface device |
| U4, U5 | iC-NH | |
| U6 | 74HC153 | |
| U7 | iC-WD | |
| U8 ... U13 | hcpu0601 | |
| U14 | xx MHz | Crystal oscillator |
| U15 | LM285-2.5 | Reference voltage (optional) |
| U16-A | 93C56C | 2K microwire EEPROM |

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BOARD AND CONNECTOR PINOUT

J1: USB signals

4-pin Connector - male

| PIN | Name | Function |
|-----|--------|------------------|
| 1 | VBUS | 5 V USB power |
| 2 | D- | USB Data - |
| 3 | D+ | USB Data + |
| 4 | GND | 5 V USB ground |
| S1 | SHIELD | USB cable shield |

J2: VDD Power Supply

2-pin Connector - female

| PIN | Name | Function |
|-----|------|----------|
| 1 | VB | Supply |
| 2 | GND | Ground |

iC-JX pin 1 ... 13

13-pin Connector - male

| PIN | Name | Function |
|-----|--------|---|
| 1 | NRD | Not Read Enable |
| 2 | NWD | Not Write Enable |
| 3 | NCS | Not Chip Select |
| 4 | VCC | Supply Voltage (analog, 3...5.5 V) |
| 5 | NSP | Not Serial / Parallel (Mode) |
| 6 | GNDA | Ground (analog) |
| 7 | REST | Resistor Setting (10 k Ω optional) |
| 8 | A3/SCK | Address Bus |
| 9 | A1 | Address Bus |
| 10 | D7 | Data Bus |
| 11 | D5 | Data Bus |
| 12 | D3 | Data Bus |
| 13 | D1/SOC | Data Bus /SOC |

J3: iC-JX interface signals

20-pin Connector - male

| PIN | Name | Function |
|-------|------|------------------|
| J1_1 | A0 | Address Bus |
| J1_2 | A1 | Address Bus |
| J1_3 | A2 | Address Bus |
| J1_4 | A3 | Address Bus |
| J1_5 | A4 | Address Bus |
| J1_6 | D0 | Data Bus |
| J1_7 | D1 | Data Bus |
| J1_8 | D2 | Data Bus |
| J1_9 | D3 | Data Bus |
| J1_10 | D4 | Data Bus |
| J1_11 | D5 | Data Bus |
| J1_12 | D6 | Data Bus |
| J1_13 | D7 | Data Bus |
| J1_14 | NCS | Not Chip Select |
| J1_15 | NWD | Not Write Enable |
| J1_16 | NRD | Not Read Enable |
| J1_17 | NINT | Not Interrupt |
| J1_18 | NRES | Not Reset |
| J1_19 | GND | Ground (logic) |
| J1_20 | GND | Ground (logic) |

iC-JX pin 14 ... 26

13-pin Connector - male

| PIN | Name | Function |
|-----|------|---------------------|
| 14 | POE | Power Output Enable |
| 15 | GNDA | Ground (analog) |
| 16 | IO16 | I/O Stage |
| 17 | IO15 | I/O Stage |
| 18 | VB4 | |
| 19 | IO14 | I/O Stage |
| 20 | IO13 | I/O Stage |
| 21 | IO12 | I/O Stage |
| 22 | IO11 | I/O Stage |
| 23 | VB3 | |
| 24 | IO10 | I/O Stage |
| 25 | IO9 | I/O Stage |
| 26 | GNDA | Ground (analog) |

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iC-JX pin 27 ... 39

13-pin Connector - male

| PIN | Name | Function |
|-----|--------|-----------------------------------|
| 27 | NINT | Not Interrupt |
| 28 | D0/SI | Data Bus/SI |
| 29 | D2/SOB | Data Bus/SOB |
| 30 | D4 | Data Bus |
| 31 | D6 | Data Bus |
| 32 | A0 | Address Bus |
| 33 | A2 | Address Bus |
| 34 | A4 | Address Bus |
| 35 | VDD | Supply Voltage (logic, 3...5.5 V) |
| 36 | NRES | Blink Frequency |
| 37 | BLFQ | Blink Frequency |
| 38 | GNDD | Ground (logic) |
| 39 | CLK | Clock (optional) |

Setup (JX2D connected via USB)

The JX2D evaluation board is equipped with the iC-JX 16-fold 24 V high-side driver with μ C interface. The board features a USB connector (J1) for Windows PC communication and a 20-pin (J3) connector for communication with external SPI adapter, microcontroller SPI interface or SPI monitoring devices. Figure 1 shows the evaluation board JX2D.

iC-JX software can be used to access the board from a Windows PC (see section APPLICATION SOFTWARE for more details).

Note: Please install the latest USB driver before you attach the evaluation board to the PC.

iC-JX pin 40 ... 52

13-pin Connector - male

| PIN | Name | Function |
|-----|------|---------------------------------------|
| 40 | GNDA | Ground (analog) |
| 41 | IO1 | I/O Stage |
| 42 | IO2 | I/O Stage |
| 43 | VB1 | Supply Voltage for I/O Stages 1...4 |
| 44 | IO3 | I/O Stage |
| 45 | IO4 | I/O Stage |
| 46 | IO5 | I/O Stage |
| 47 | IO6 | I/O Stage |
| 48 | VB2 | Supply Voltage for I/O Stages 5...8 |
| 49 | IO7 | I/O Stage |
| 50 | IO8 | I/O Stage |
| 51 | GNDA | Ground (analog) |
| 52 | VREF | External Voltage Reference (optional) |

JUMPER DESCRIPTION

| Jumper | Pin 1 | Pin 2 | Default Setting |
|---------|-------------------------|------------------------------|-----------------|
| JP_A0 | VCC iC-JX | Address Bus | Open |
| JP_A1 | VCC iC-JX | Address Bus | Open |
| JP_A2 | VCC iC-JX | Address Bus | Open |
| JP_A3 | Latched A3 | Address Bus | Closed |
| JP_A4 | VCC iC-JX | Address Bus | Closed |
| JP_POE | VCC iC-JX | Power Output Enable | Closed |
| JP_NSP | VCC iC-JX | Not Serial / Parallel (Mode) | Open |
| JP_NCS | Latched Not Chip Select | iC-JX | Closed |
| JP_D0 | Latched D0_1 | iC-JX | Closed |
| JP_D1/2 | Data Bus | iC-JX | Closed |
| NRES | Latched Not Reset | iC-JX | Closed |
| JP_VB | J2 VB | VB iC-JX | Closed |

EVALUATION SOFTWARE

iC-JX software for PCs running on Windows operating systems, as well as the required USB driver are available as a ZIP file.

Software overview online: <http://www.ichaus.de/software>

Download package including USB driver
iC-JX: http://www.ichaus.de/JX_gui

Features

- Reducing evaluation and design-in time and cost
- Reading and displaying of sensor data and status
- Manually setting up parameters of iC-JX
- Export and import iC-JX configuration parameters settings to/from files
- Export of Software and User activity logbook to textfiles

Download and unpacking

After unzipping the iC-JX software package JX1SO_gui_xx , the following files are located in the selected working directory:

- Subfolder JX1SO_gui_xx including the executable setup.exe which starts the installation routine.
 - Driver packages for iC-JX evaluation board and/or other iC-Haus USB adapter devices.
 - Quick Installation Guide PDF for iC-JX EVAL JX2D.
- xx is a placeholder for revisions

Note: Administrator rights are required to run installations.

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Installation

1. To access the iC-JX evaluation board, interface drivers for USB need to be installed. Before connecting the iC-JX evaluation board to your PC the driver installation must be completed successfully. → Execute the USB_xx.exe installation package and follow the on-screen instructions. This can take a few minutes.

1.1 When using an iC-Haus iC-JX evaluation board, it must to be connected to the PC after the driver installation, to complete the whole driver installation procedure.

2. Install the evaluation software JX1SO by executing the setup.exe located in the subfolder JX1SO_gui_xx. → Follow the on-screen instructions to finish the installation.

3. After installation the executable JX1SO_gui_xx.exe will be available in the selected working directory.

RELATED DOCUMENTS

- iC-JX Data Sheet - Specification -
- iC-JX GUI - GUI software for Windows PC -
→ <http://www.ichaus.de/iC-JX>

REVISION HISTORY

| Rel | Rel.Date | Chapter | Modification | Page |
|-----|----------|---------|-----------------|------|
| A1 | 13-06-12 | | Initial version | |

| Rel | Rel.Date | Chapter | Modification | Page |
|-----|----------|-------------------------------------|---|------|
| A2 | 15-02-25 | BOARD JX2D AND TERMINAL DESCRIPTION | Figure 1 updated (JP_A0 shown in position "Open") | 1 |
| | | JUMPER DESCRIPTION | Jumper JP_A0 set to "Open" | 6 |

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