

K2G Industrial Communications Engine (K2G ICE) Quick Start Guide



Welcome to the K2G Industrial Communications Engine (ICE) Quick Start Guide. This guide is designed to help you through the initial setup of the K2G ICE. The K2G ICE contains the following:

Hardware Features

- K2G SoC 66AK2G02 is based on KeyStone II architecture with ARM cortex A15 @600MHz and C66x DSP @600MHz
- 2x PRU-ICSS, supporting multi-protocol industrial Ethernet with up to 4 ports.
- 512MByte of DDR3L
- 256Mbit of QSPI Flash
- 32KByte of I2C EEPROM
- Micro SD-Card slot
- 1x Gigabit Ethernet port supporting 10/100/1000 Mbps data rate on RJ45 connector
- 4x 10/100 Industrial Ethernet connectors
- PCIe x1 card edge connector
- LCD display
- Expansion connector with industrial interface signals for customer designs
- On-board XDS100 JTAG Emulator Circuit
- 20-Pin JTAG header to support all types of external emulator
- RoHS compliant design
- Powered by DC power-wall adaptor (24V/2.5A) or PCIe Edge Connector
- 8-bit digital output LEDs
- Industrial Ethernet LEDs
- Rotary switch input
- Boot media selection using DIP switches
- Discrete Board Power Solution



Documentation

- K2G Industrial Communications Engine (K2G ICE) Quick Start Guide (this document)
- K2G ICE Mechanical Accessories Mounting Instructions
- K2G ICE Warranty Notice

Miscellaneous

- Ethernet Cable
- Micro B to Standard A USB Cable
- Micro SD Card (8GB)
- Mechanical Accessories Kit

Instructions for Power Supplies

Due to regulatory requirements, Texas Instruments Incorporated cannot provide an external power supply. The K2G ICE has been tested with the CUI SDI65-24-U-P5 +24V and the CUI SDI65-12-U-P5 +12V power supplies which can be purchased from distributors. Links to the supplies are shown below.

CUI SDI65-12-U-P5

<http://www.digikey.com/product-detail/en/cui-inc/SDI65-12-U-P5/102-3417-ND/5277850>

CUI SDI65-24-U-P5

<http://www.digikey.com/product-detail/en/cui-inc/SDI65-24-U-P5/102-3418-ND/5277851>

Instructions Mechanical Assembly

The K2G ICE can be used with or without the mechanical standoffs provided with the board. Standoff mounting is described in the K2G ICE Mechanical Accessories Mounting Instructions.

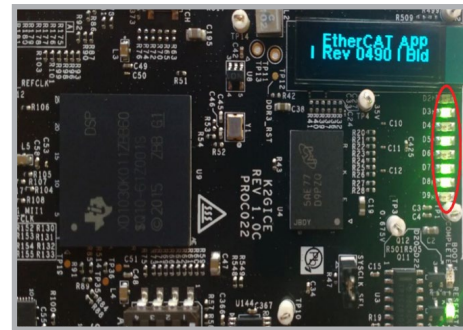
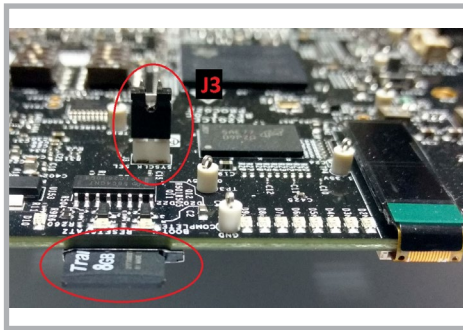
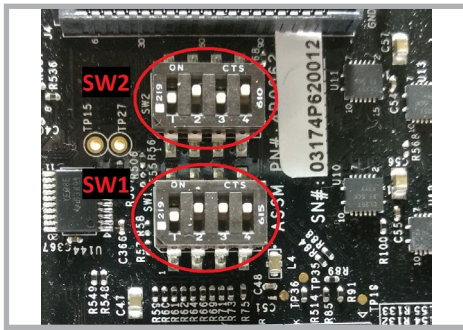
Instructions to boot out-of-box demonstration

This document provides the steps to setup and run the EtherCAT slave demo on K2G ICE. The EtherCAT slave demo is delivered with K2G ICE board on the provided micro SDcard. Refer to following link for more details on TI's PRU-ICSS EtherCAT industrial software package.

http://software-dl.ti.com/processor-industrial-sw/esd/PRU_ICSS_EtherCAT_Slave/latest/index_FDS.html

An online version of these instructions can be found in the following location.

http://processors.wiki.ti.com/index.php/Configuring_TwinCAT_For_K2GICE_EtherCAT_Slave



1 Confirm the Boot switches are set to SD boot. The K2G ICE should be delivered with the switches in this configuration.

- o SW1 – OFF ON ON ON
- o SW2 – OFF ON OFF ON

2 Insert the micro SD card with EtherCAT slave demo binaries into micro SD slot (bottom side of the board).

3 Select the 24MHz crystal as the clock source for the K2G by shorting the pins Jumper 'J3' using the shunt provided. The K2G ICE should be delivered with the shunt installed.

6 Observe that the message 'EtherCAT APP' appears on the OLED display. Also observe the LEDs for the pattern shown in the picture above to confirm that EtherCAT application has started.



4 Connect the Ethernet cable between K2G ICE EtherCAT IN/Port0 (J8, lower RJ-45 port) and the PC with the TwinCAT installation.

5 Apply +24V to the K2G ICE with either a bench power supply or with a +24V power supply purchased separately.

The K2G ICE is now acting as an EtherCAT slave and the Industrial LEDs can be lit using instructions from an EtherCAT master using the TwinCAT application. Instructions for installing and operating the TwinCAT application can be found in the K2G ICE User's Guide.

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Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
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