

# Demonstrating U-Boot from SPI/QSPI for 66AK2G

# 66AK2Gx (K2G) Evaluation Module

(ACTIVE) EVMK2G

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## Key Document

- [K2G General-Purpose \(GP\) EVM Quick Start Guide \(Rev. A\)](#) (PDF 1344 KB)  
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- [Designing Embedded Systems for High Reliability With 66AK2Gx \(Rev. A\)](#) (PDF 667 KB)  
28 Aug 2017 562 views
- [Getting personal with the 66AK2Gx SoC \(Rev. A\)](#) (PDF 681 KB)  
02 Aug 2017 628 views

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EVMK2G 66AK2Gx 'K2G' Evaluation Module Board Image



## Description

The K2G Evaluation Module (EVM) enables developers to immediately start evaluating the 66AK2Gx processor, and to accelerate the development of audio, industrial motor control, smart grid protection and other high reliability, real-time compute intensive applications. Similar to existing Keystone-based SoC devices, the 66AK2Gx enables both the DSP and ARM cores to master all memory and peripherals in the system. This architecture facilitates maximum software flexibility where either DSP- or ARM-centric system designs can be achieved.

This EVM is supported by Processor SDK for both Linux® and TI-RTOS operating systems and features key peripherals such as USB, PCIe and Gigabit Ethernet. It includes a Board Management Controller, SD card slot and on board XDS200 emulator for ease of software evaluation and debug. The K2G EVM also interconnects to an optional companion Audio Daughter Card (AUDK2G) for audio applications.

## Features

- 66AK2G02 C66x DSP+ARM A15 Processor at 600MHz
- 2-GByte DDR3L with ECC
- TPS659118 PMIC
- Audio and Serial expansion headers
- Processor SDK Linux and TI-RTOS support
- Supports Gigabit Ethernet

SPI  
Master

SPI  
Slave

Quad-SPI  
Master

SPI  
Slave



SPI NOR

QSPI Flash

DSP  
XD1030K011ZBB60  
10Q10-54Z007S  
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Kingston  
3409E134001A008-A  
U30 2844504  
Pmc166-5100

## K2G EVM Console capture SPI NOR boot configuration

To tftp get the prebuilt .gph file to the EVM memory, set up the tftp server and configure serverip and tftp\_root of the u-boot environment variables:

```
=> setenv serverip 158.218.109.194  
=> setenv tftp_root psdk4209-keg
```

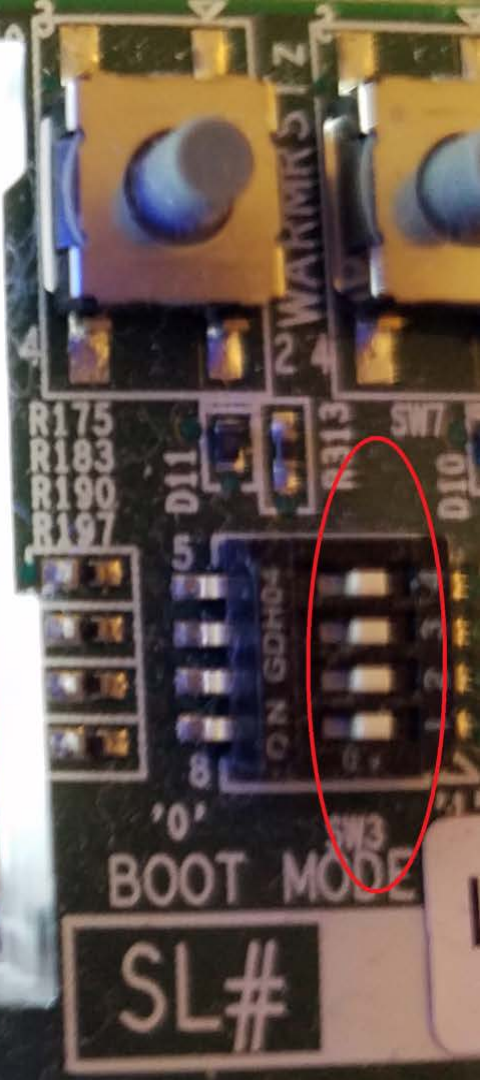
Once these are set up and in u-boot prompt, run the u-boot script get\_uboot\_net to retrieve the file, and burn\_uboot\_spi to program the NOR flash:

```
=> run get_uboot_net  
=> run burn_uboot_spi
```



QSPI 48 Boot

K2G GP EVM Technical Reference Manual  
<http://www.ti.com/lit/sprui65a>



## K2G EVM Console Capture QSPI configuration

To retrieve the MLO from SD card, be sure the mmc is responding by rescanning it. Then, load the MLO file from mmc with fatload command.

```
=> mmc rescan
```

```
=> fatload mmc 0 ${loadaddr} MLO
```

To retrieve the file from network, the tftp server needs to be set up, and the serverip and ipaddr of the u-boot environment variables need to be set. Then, tftp the prebuilt MLO file from the tftp server.

```
=> setenv serverip tftp.server.ip.addr
```

```
=> setenv ipaddr evm.ip.addr
```

```
=> tftp ${loadaddr} ${serverip}:psdk4209-k2g/MLO-k2g-evm
```

QSPI 96 Boot

K2G GP EVM Technical Reference Manual  
<http://www.ti.com/lit/sprui65a>





## K2G EVM Console capture: Kernel boot

In this example, the network boot is used with an NFS-mounted filesystem. With this kernel boot option, the u-boot environment variables `boot`, `serverip`, `nfs_root`, and `tftp_root` need to be configured:

```
=> setenv boot net
```

```
=> setenv serverip 158.218.109.194
```

```
=> setenv nfs_root /nfs/nfs_fs1
```

```
=> setenv tftp_root psdk4209-keg
```

Once configured, the system will be able to boot to the kernel prompt.

# For More Information

- 66AK2x Multicore DSP + ARM Processors:  
<http://www.ti.com/processors/dsp/c6000-dsp-arm/66ak2x/overview.html>
- Processor SDK for 66AK2Gxx Processor:  
<http://www.ti.com/tool/processor-sdk-K2G>
- Evaluation Modules for the 66AK2Gxx User's Guide (TRM):  
<http://www.ti.com/lit/sprui65>
- Processor SDK U-boot User's Guide:  
[http://processors.wiki.ti.com/index.php/Linux\\_Core\\_U-Boot\\_User%27s\\_Guide](http://processors.wiki.ti.com/index.php/Linux_Core_U-Boot_User%27s_Guide)
- For questions about this training, refer to the E2E Community Forums for Sitara Processors at [http://e2e.ti.com/support/arm/sitara\\_arm/f/791/t/277411](http://e2e.ti.com/support/arm/sitara_arm/f/791/t/277411)



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