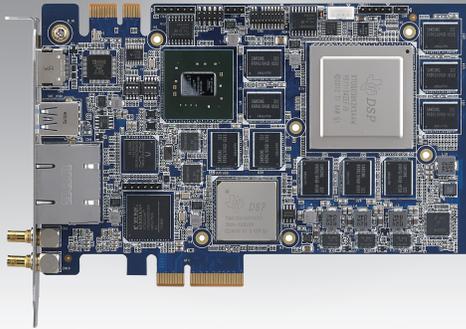


# DSP-8683

## Half-Length PCI Express Card with TI 66AK2H12 and TMS320C6678 DSPs

Preliminary



### Features

- One 66AK2H12, one TMS320C6678 and one XC7K70T FPGA on single half-length PCI Express Card with PCIe Gen2 x2 interface to the edge connector
- Four ARM Cortex-A15 @ 1.4GHz and Eight TMS320C66x™ DSP Core Subsystems (C66x CorePacs) @ 1.2GHz of 66AK2H12
- Eight TMS320C66x™ DSP Core Subsystems (C66x CorePacs) @ 1.25GHz of TMS320C6678
- Supports dual SDI-3G input & output and single HDMI 1.3a input
- Supports XDS200 and XDS560v2 evaluation module via JTAG for CCS connection
- Supports new video standards HEVC/H.265 & H.264 codec
- For video acquisition, encode, decode, transcode, analytic & streaming applications

FCC CE

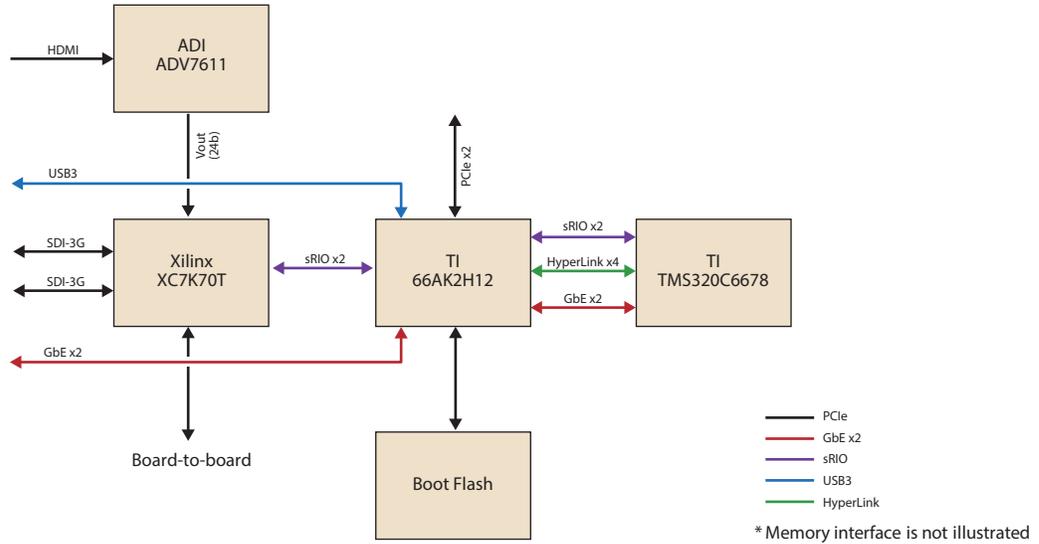
### Introduction

The DSP-8683 integrates Texas Instruments 66AK2H12 and TMS320C6678 multicore processors based on the KeyStone architecture, and a Xilinx Kintex-7 XC7K70T FPGA device to provide the highest computing performance and flexibility in a half-length PCIe form factor for supporting a wide range of applications. The built-in 16 TI C66x DSP cores and 4 ARM Cortex-A15 cores offer unrivalled processing capabilities for data and control plane processing while the reprogrammable Xilinx Kintex-7 FPGA device adds flexibility to the design by allowing the inclusion of customized hardware functions. Video acquisition is achieved through SDI-3G input/output and HDMI input connectors facilitating connectivity to external devices for video processing. The Gigabit Ethernet and USB3 interfaces can be used for data streaming between the DSP-8683 and remote systems. A unique standalone operation mode enables the DSP-8683 to be operated as an autonomous embedded system without the involvement of an additional host processor card or motherboard, allowing highly cost effective deployment. An innovative and unique, dedicated board-to-board interconnect offers the possibility of synchronizing multiple DSP-8683 cards over dedicated high-speed serial interfaces. All these unprecedented features make the DSP-8683 ideal for new video standards (such as HEVC/H.265) in broadcasting, machine vision, medical imaging, cloud computing, and mission critical applications among others.

### Specifications

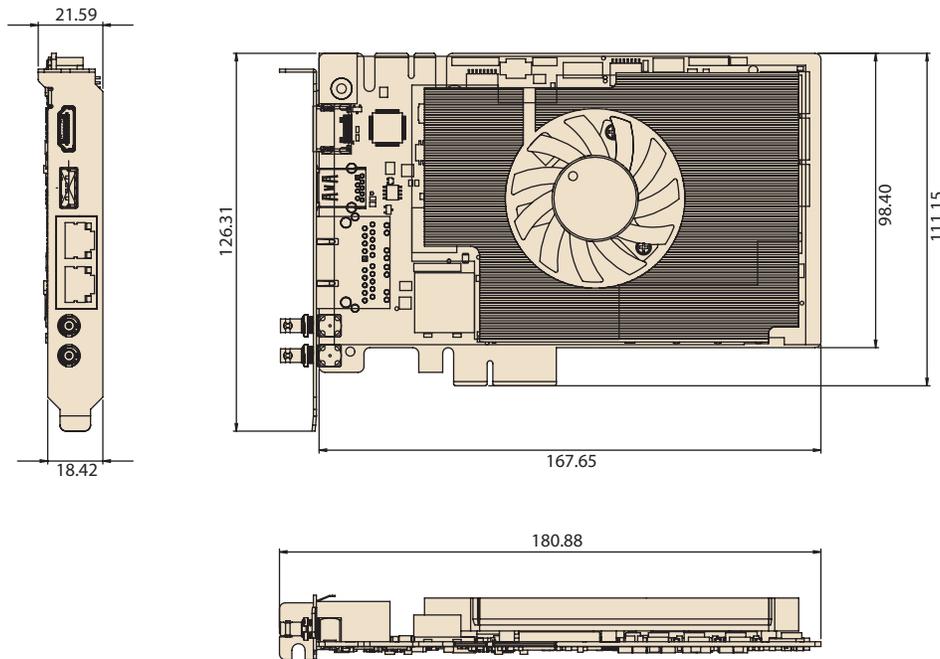
Media Processing Elements	TI 66AK2H12 Four ARM Cortex-A15 cores (@1.4GHz) Eight TMS320C66x cores (@1.2GHz) Two 64-bit DDR3 memory channels Two Serial RapidIO 2.1 x2 interfaces up to 10Gbps bandwidth One PCIe Gen-2 x2 interface 10/100/1000Mbps Ethernet w/ SGMII HyperLink interface	TI TMS320C6678 Eight TMS320C66x cores (@1.25GHz) One 64-bit DDR3 memory channel Two Serial RapidIO 2.1 x2 interfaces up to 10Gbps bandwidth One PCIe Gen-2 x2 interface 10/100/1000Mbps Ethernet w/ SGMII HyperLink interface
	Video Signal Transmitter	Xilinx Kintex-7 XC7K70T FPGA
Video Interface	2 x SDI-SD/HD/3G & ASI input & output 1 x HDMI 1.3a input	
Host Interface	PCI Express Gen-2 x2 with PCI Express x4 edge connector	
Ethernet	2 x 10/100/1000 Mbps Ethernet ports	
USB	1 x USB3.0 connector	
Software Support	Host PC Linux DSP program loader MCSDK for 66AK2H12 & TMS320C6678 PDK for 66AK2H12 & TMS320C6678	
Power	Max. 60 W	
Cooling	Aluminum cooler with fan (4800 RPM, 19.41 CFM)	
Physical Dimensions	111.15 x 167.65 mm (4.48" x 6.6") 0.5 kg	
Environment	Operating temperature: 0 to 50° C Humidity: 20% to 90 % RH Storage temperature: -20 to 70° C Humidity: 5% to 95 % RH	

### Block Diagram



### Dimensions

Unit: mm



### Ordering Information

Part Number	Description
DSP-8683G1-00A1E	TI 66AK2H12 1.2G and TMS320C6678 1.25G Half-Length PCI Express Card with SDI and HDMI