

Mixed Signal Division

DK86065-2

January 2008

Version 2.1

14-bit 1+GSa/s DAC Development Kit

FME/MS/DAC80S/FL_2/5488

Features

- Development kit for MB86065
 - MB86065 Evaluation Board
 - PC USB Programming Cable
 - PC control software supplied on CD
 - Win2000/XP compatible
 - User Manual
- SMA data adaptors (optional)
- Provides easy access to on-chip waveform memories to perform initial performance tests, avoiding need for high performance data generating equipment

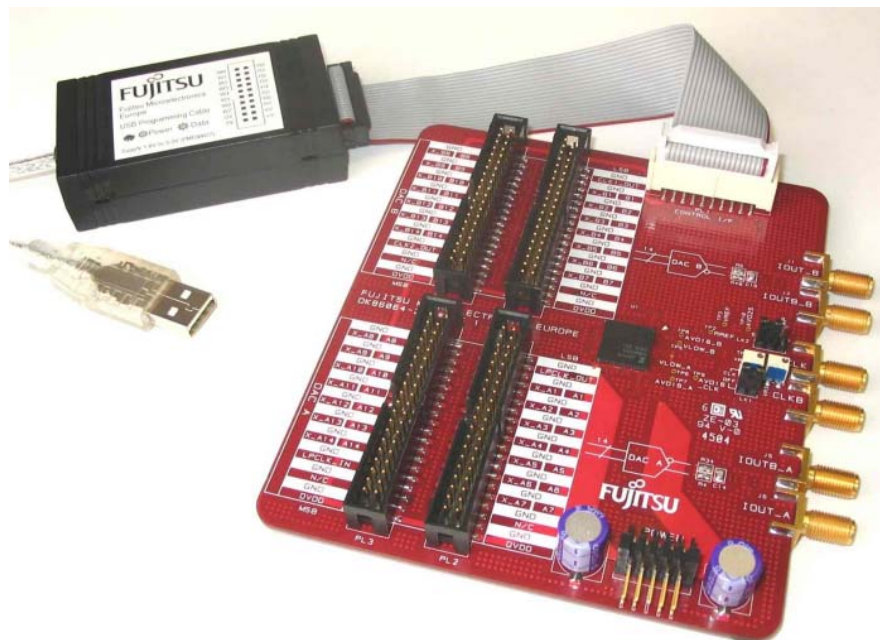
Description

The DK86065-2 development kit provides a simple and effective means of evaluating the MB86065 14-bit 1+GSa/s Digital to Analog Converter (DAC).

A user manual provides a step-by-step guide from configuring the board and connecting test equipment, through to evaluating the MB86065 performance. Schematics, PCB overlays and connector pin-outs are included. The evaluation platform requires two DC power supplies, 1.8V & 3.3V, each capable of providing 1 amp.

The PC USB programming cable and control software is included to configure and control the device, as well as download test vectors to the waveform memory module.

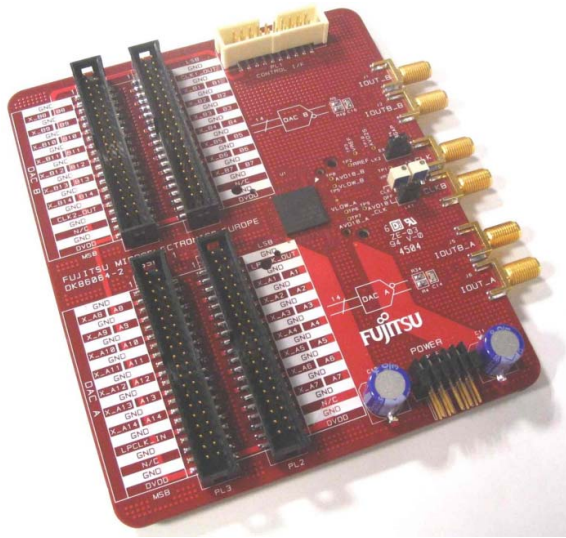
DK86065-2 Evaluation Platform



DK86065-2 14-bit 1+GSa/s DAC Development Kit

Essential Equipment

Apart from the power supplies, the minimum equipment vital to conducting an evaluation of the MB86065 is a high quality RF clock and spectrum analyser. The phase & spurious performance of the clock should be such as to not limit the DAC performance (e.g. HP8664A). However, performance of even the best spectrum analysers available is inferior to that of the converter. To overcome this, filtering techniques and careful attention to analyser settings, e.g. RF Attenuation, is essential during the course of the evaluation.



Driving the DAC

As with any DAC evaluation an appropriate test vector stimulus is required. Unfortunately at data rates above 300MSa/s this requires digital pattern generation capabilities beyond most standard test equipment. The DK86065-2 Development Kit has been designed to help overcome this difficulty in a number of ways. Initially, unmodulated or pseudo-modulated single and multi-tone/carrier tests can be conducted using waveforms downloaded to the on-chip memories.

Test waveforms are easily loaded into the memories using the PC software and USB

programming cable supplied. Even if high speed digital pattern generating equipment is available, initial testing using the waveform memories serves as a useful setup check.

Pattern generators can be connected to the evaluation board using either the on-board 2-row 0.1" data headers, or via ribbon cables to the optional SMA adaptors. When using the 0.1" data headers it is assumed that a custom wiring harness will be required. This would be made according to the connector type and pinout of the generator's output. The optional SMA adaptors provide a convenient conversion from SMA to the evaluation board's 0.1" headers. This alleviates the simultaneous removal of 28 SMAs (14-bit differential LVDS) when required to be disconnected. One advantage of this is the ability to easily swap the data generator between DAC data ports if insufficient channels are available to drive both ports simultaneously.



Rather than using general purpose test equipment, customers may wish to use the evaluation board to construct a platform more representative of their end application. This might, for example, involve an FPGA to implement a variety of pre-processing and/or waveform generation functions. At the simplest level, a setup similar to that described for the digital pattern generator could be used, where a custom wiring harness interfaces a standard or existing FPGA platform to the DAC evaluation board. Control of the DAC from the PC software can be maintained to minimise effort to get up and running.

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Clock Inputs & Analog Outputs

The evaluation board is designed to accommodate up to four SMA connectors - two for the differential clock input and two for the differential analog output. Boards are supplied with transformers on-board to perform single ended-to-differential and differential-to-single ended conversions. As such, only two SMAs are required. This facilitates easier connection to standard test equipment for evaluation.

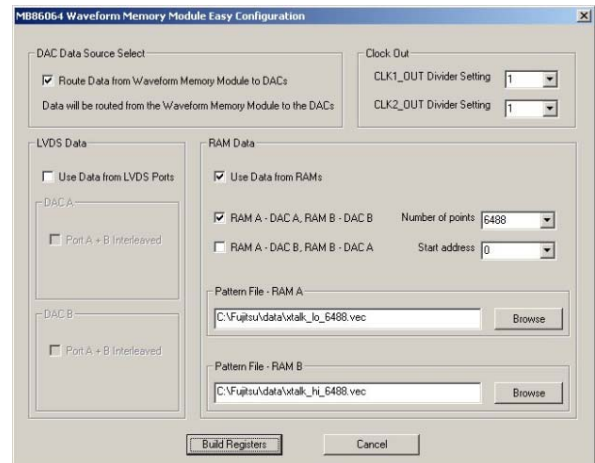
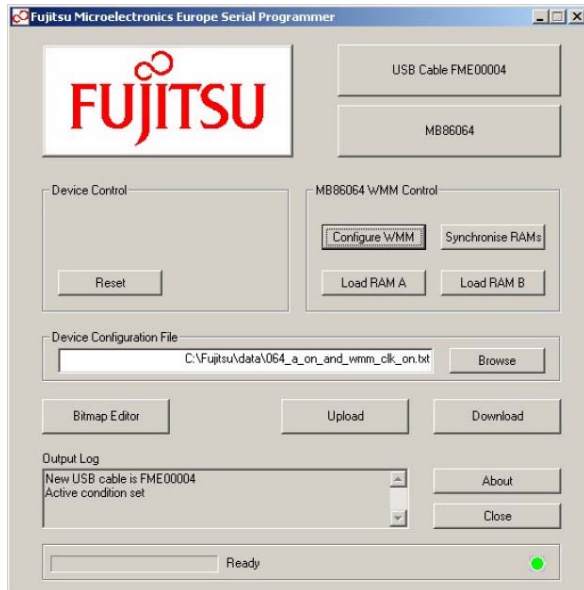
PC Control Software

To simplify control & configuration of the MB86065 during evaluation the development kit includes a PC USB programming cable and software utility. The programming cable interfaces between a host PC's USB port and the 4-wire serial interface implemented on the device. Software is supplied on CD.



Ordering Information

Part	Order Reference
Complete Development Kit (includes Evaluation Board with device fitted, PC USB Programming Cable & Control Software and User Manual)	DK86065-2
SMA Adaptors (optional)	DK86064-1-SMA
PC USB Programming Cable & Control Software	DKUSB-1
MB86065 Device (RoHS-6 compliant)	MB86065PB-GE1
DK86065-2 User Manual	Contact Fujitsu
MB86065 Data sheet	emea.fujitsu.com



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