DK101
Low-Cost Demo Kit Motherboard

www.maxim-ic.com

GENERAL DESCRIPTION

The DK101 is a general-purpose demo kit platform for evaluating Dallas Semiconductor Telecom ICs. The ICs are mounted on daughter cards specifically designed to plug into the DK101's connector. The DK101 provides a microprocessor, flash- and SRAM-based program memory, various oscillators and support logic, and an RS-232 interface to a host PC. As shipped from the factory, the processor runs general-purpose firmware that executes reads and writes to the daughter card on behalf of PC-based demo software. Custom firmware can be downloaded and executed by the processor for advanced applications.

DEMO KIT CONTENTS

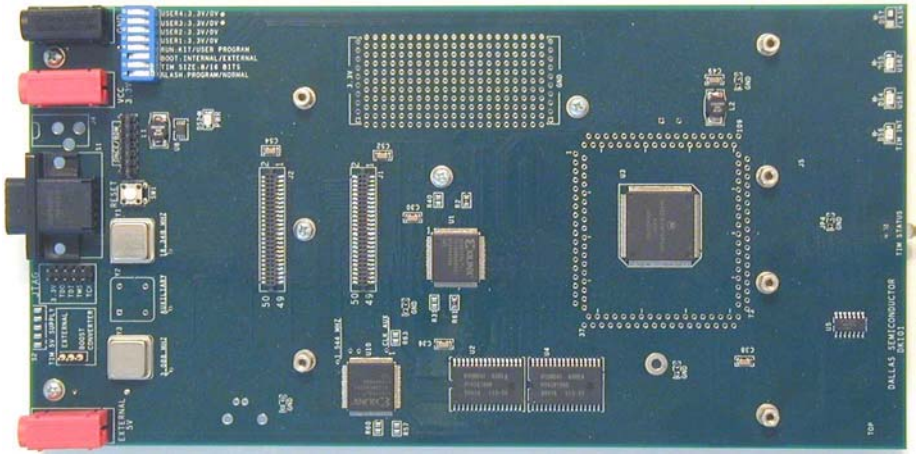
DK101 Board
One Daughter Card
CD-ROM
- ChipView Demo Software
- DK101 Data Sheet
- DK101 Schematics
- Configuration Files
- Definition Files
- Initialization Files

FEATURES

- Connects PC-Based Demo Software to the Telecom IC(s) Under Evaluation
- Provides Point-and-Click Access to All Telecom IC Registers and Features
- 128kB of Flash Memory, 264kB of SRAM
- Demo Software User Interface can be Customized with Simple Text Edits
- Allows Download and Execution of Custom Firmware for Advanced Applications
- Supports 3.3V and 5V Telecom ICs
- On-Board Oscillators: 3.088MHz (2 x DS1), 16.384MHz (8 x E1), and 44.736MHz (DS3)
- Four General-Purpose Switches Available for Use with Custom Firmware
- Motorola ONCE/BDM Connector for Code Development and Debug

ORDERING INFORMATION

PART	DESCRIPTION
DSDK101	Motherboard



REV: 052903

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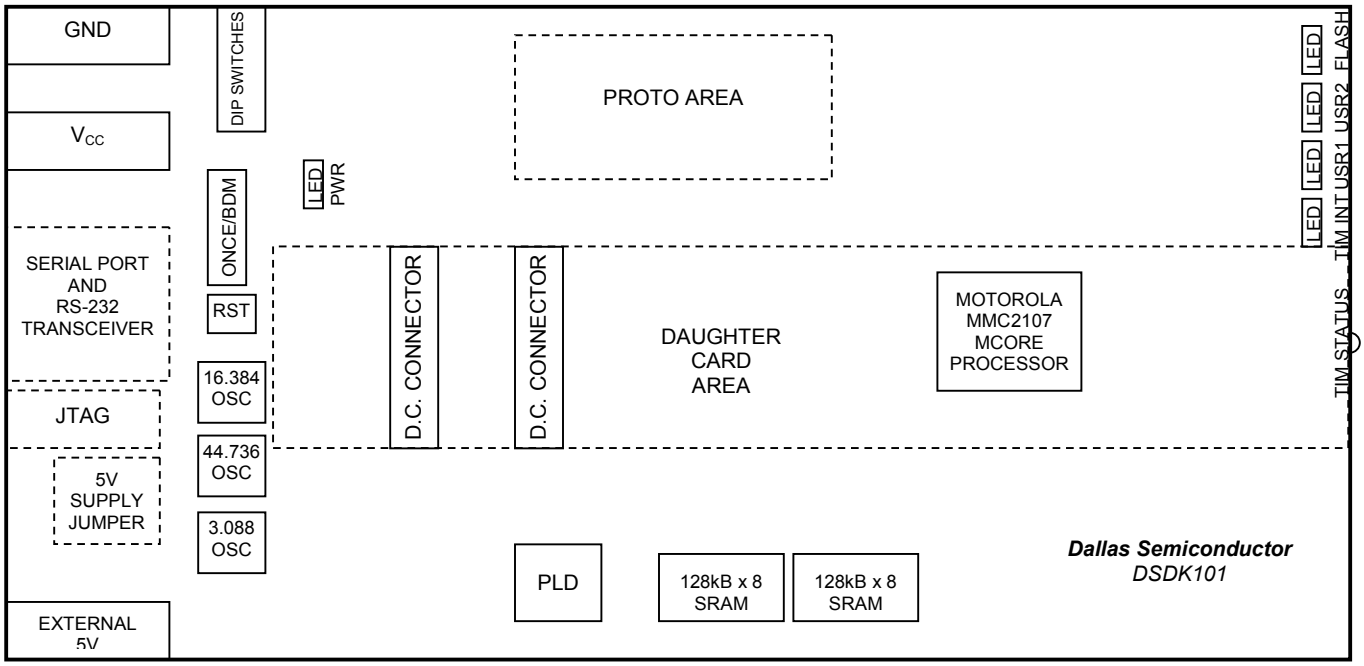
COMPONENT LIST

DESIGNATION	QTY	DESCRIPTION	SUPPLIER	PART
C1, C2	2	68μF 20%, 16V tantalum capacitors (D case)	Digi-Key	P11320CT-ND
C3, C4	2	0.1μF 10%, 25V ceramic capacitors (1206)	Digi-Key	PCC1883CT-ND
C5–C8, C10, C12, C14, C16, C18–C50, C52, C54, C56, C57	45	1μF 10%, 16V ceramic capacitors (1206)	Digi-Key	PCC1882TR-ND
C9, C11, C13, C15, C17, C51, C53, C55	8	10μF 20%, 16V tantalum capacitors (B case)	Digi-Key	PCS3106CT-ND
D1, D4	2	50V, 1A general-purpose silicon diode	Digi-Key	1N4001GICT-ND
DS1	1	Header SIP 3-position straight PC board	Digi-Key	ED7203-ND
DS2	1	LED, green, SMD	Digi-Key	P501CT-ND
DS3	1	LED red/green, 5mm red/green right-angle PCMT	Digi-Key	350-1055-ND
DS4–DS6	3	LED, red, SMD	Digi-Key	P500CT-ND
DS7	1	LED, amber, SMD	Digi-Key	P511CT-ND
J1, J2	2	50-pin, 2 x 25 female connectors	Arrow Electronics	SFM-125-L2-S-D-LC-02-S-D-LC
J3	1	10-pin, dual row, vertical connectors	Digi-Key	S2012-05-ND
J4	1	2.5mm power jack, right-angle PC board connector	Digi-Key	SC1152-ND
JP1	1	Dual row header, 7 pin, keyed	Digi-Key	S2012-07-ND
L1	1	22.0μH, 2-pin SMT 20% inductor	PEI	UP1B-220
L2	1	1.0μH, 2-pin SMT 20% inductor	PEI	UP1B-1R0
PWR_CONNBAN1, PWR_CONNBAN3	2	Connector, power, red	Mouser Electronics	1646219
PWR_CONNBAN2	1	Connector, power, black	Mouser Electronics	1646218
R1–R4, R9–R14, R15–R22, R25, R27, R28, R30, R32, R39, R52, R53, R61	27	10kΩ 1%, 1/10W resistors (0805)	Digi-Key	P10.0KCTR-ND
R23, R33, R36, R37, R41–R43, R45, R50	9	51.1Ω 1%, 1/8W resistors (1206)	Digi-Key	P51.1FCT-ND
R31, R34, R40, R47, R54, R57, R58, R60, R62, R63	10	10kΩ 1%, 1/10W resistors (0805)	Digi-Key	P10.0KCCT-ND
R44	1	1kΩ 1%, 1/8W resistors (1206)	Digi-Key	P10.0KFCT-ND
R5, R8, R24, R46, R48, R49, R55	7	1.0kΩ 1%, 1/10W resistors (0805)	Digi-Key	P1.00KCCT-ND
R51	1	1.0MΩ 1%, 1/10W resistor (0805)	Digi-Key	P1.00MCCT-ND
R6, R7, R26, R29, R35, R56	6	330Ω 0.1%, 1/10W MF resistors (0805)	Digi-Key	P330ZCT-ND
S2	1	9-pin DSUB right-angle connector, female	Force Electronics	788750-2
SW1	1	Momentary, 4-pin, single pole switch	Digi-Key	P8008S-ND
SW2	1	Low-profile 8-position DIP switch	Digi-Key	A5408-ND
U1, U10	2	XILINX CPLD	Avnet	XC9572XL-10TQ100C
U11	1	8-pin SO, P-channel MOSFET	Fairchild Semiconductor	SI4435DY
U2, U4	2	SRAM 5V, 1Mb SO	Cypress	CY62128V
U3	1	32-bit microcontroller	Avnet	MMC2107CFCV33
U5, U9	2	Hex converter	Digi-Key	MM74HC14M-ND
U7	1	Dual RS-232 transceivers with 3.3V/5V internal capacitors	Maxim	MAX3233E
U8	1	8-pin SO, 0.5A-limit step-up DC-DC converter	Maxim	MAX1675EUA
X2	1	8.0MHz low-profile XTAL	PEI	EC1-8.000M
Y1	1	16.384MHz, 25ppm 4-pin half-size oscillator	Arrow Electronics	NCH069A3-16.384
Y2	1	44.736MHz, 25ppm, 3.3V 4-pin half-size oscillator	SaRonix	NCH089A3-44.736
Y3	2	3.088MHz, 25ppm 4-pin half-size oscillator	Arrow Electronics	NCH039A3-30488

BOARD FLOORPLAN

Figure 1 shows the floorplan of the DK101 platform. A daughter card attaches to the two connectors in the left-center of the board. The Motorola MMC2107 processor is located in the right-center of the board. External SRAMs are situated at the bottom of the board. Connectors for power, ground, serial port, JTAG, and ONCE/BDM are located on the left side of the board, along with the oscillators, DIP switches, and jumpers. Several LEDs are positioned along the right edge of the board. The top-center of the board contains a prototyping area.

Figure 1. Board Floorplan



INTRODUCTION

This document is divided into two main sections: *Basic Operation* and *Advanced Features*.

The *Basic Operation* section discusses how to:

- Set up the hardware and connect to a PC
- Install and run the ChipView demo software
- Use ChipView's Register View and Demo modes to interact with the daughter card hardware
- Select and use the definition and configuration files provided with the DK101 and the daughter cards

The *Advanced Features* section discusses how to:

- Create and edit register definition (.DEF) files
- Create and edit register initialization (.INI) files
- Use Terminal Mode
- Download and execute custom firmware

In addition to these main sections, the *Appendix* provides hardware-related details that supplement the schematic. Only users with complex evaluation requirements will need the information in the *Advanced Features* section and the *Appendix*.

BASIC OPERATION

Hardware Configuration

Connecting a Daughter Card. Plug the daughter card into the DK101's connectors. The daughter card should be oriented as shown in Figure 1. Note that some daughter cards have a third connector for advanced features (UTOPIA bus, POS-PHY bus, etc.). The DK101 is compatible with three-connector daughter cards, but does not support the advanced features available on the third connector. These advanced features are supported on Dallas' high-end demo kit platform, DK2000. When present, the third connector is located to the left of the other two connectors (when oriented as shown in Figure 1). Note that daughter cards are not designed for hot insertion. Only connect daughter cards to the DK101 motherboard with the power off.

Power Supply Connections. Connect a 3.3V power supply across the red (V_{CC} 3.3V) and black (GND) banana jacks. The green PWR LED should be lit to indicate power is applied to the board. The TIM STATUS LED should be green to indicate that the DK101 recognizes the attached daughter card. If TIM STATUS is red, the DK101 is not properly connected to the daughter card or does not recognize the daughter card.

If the daughter card has a device that requires a 5V supply, do one of the following:

1) To use the DK101's on-board DC-DC converter (max current = 1A), set the three-position jumper marked TIM 5V SUPPLY to BOOST CONVERTER.
2) To use an external 5V power supply, set the TIM 5V SUPPLY jumper to EXTERNAL and connect the external power supply across the red EXTERNAL 5V and black GND jacks.

Connecting to a Computer. Connect a standard DB-9 serial cable between the serial port on the DK101 and an available serial port on the host computer. The host computer must be a Windows®-based PC. Be sure the cable is a standard straight-through cable rather than a null-modem cable. Null-modem cables prevent proper operation.

Setting the DIP Switches. For basic operation, use the following settings:

- Switch number 1 OFF (flash program voltage not applied).
- Switches 2 through 4 ON (8-bit daughter card; boot internal; run kit firmware).
- Switches 5 through 8 do not affect operation of the kit firmware.

Installing the ChipView Software

To install the demo software on the host PC, run SETUP.EXE on the demo kit CD-ROM (or from the .ZIP file downloaded from the our website, www.maxim-ic.com/telecom). Follow the instructions given by the SETUP program. By default, SETUP installs the application software in "C:\Program Files\ChipView" and creates a shortcut in the ChipView program group.

Running the ChipView Software

Run the ChipView application. If the default installation options were used, click the Start button on the Windows toolbar and select Programs→ChipView→ChipView. The main menu window provides three options: Register View, Demo, and Terminal Mode. Register View mode and Demo mode are discussed in the following paragraphs. Terminal mode is discussed in the *Advanced Features* section.

Register View Mode

Register View provides an intuitive user interface for reading, writing, and viewing the IC registers on the daughter card. Register bytes and bits are displayed by name in an on-screen array. Values can be read or written with a click of the mouse. Figure 2 shows an example of the Register View window.

To go to Register View from the ChipView main menu window, follow these steps:

1) Push the Register View button in the main menu window. A popup window for COM port selection appears next. Select the appropriate port from the menu and click OK. Next, the Definition File Assignment window appears. This window has subwindows to select definition files for up to four separate daughter cards. Because the DK101 platform only interfaces with one daughter card at a time, only one subwindow is active.

Windows is a registered trademark of Microsoft Corp.

2) Select a definition file from the list shown, or browse to find a file in another directory. Typically definition file names contain the device name, e.g., DS2155.def. Some daughter cards ship with multiple definition files. See the daughter card data sheet for detailed information on the use of the various files.

3) Press the Continue button.

The main part of the Register View window displays the register map. To select a register, click on it in the register map. When a register is selected, the full name of the register and its bit map are displayed at the bottom of the Register View window. Bits that are logic 0 are displayed in white, while bits that are logic 1 are displayed in green.

The Register View interface supports the following actions:

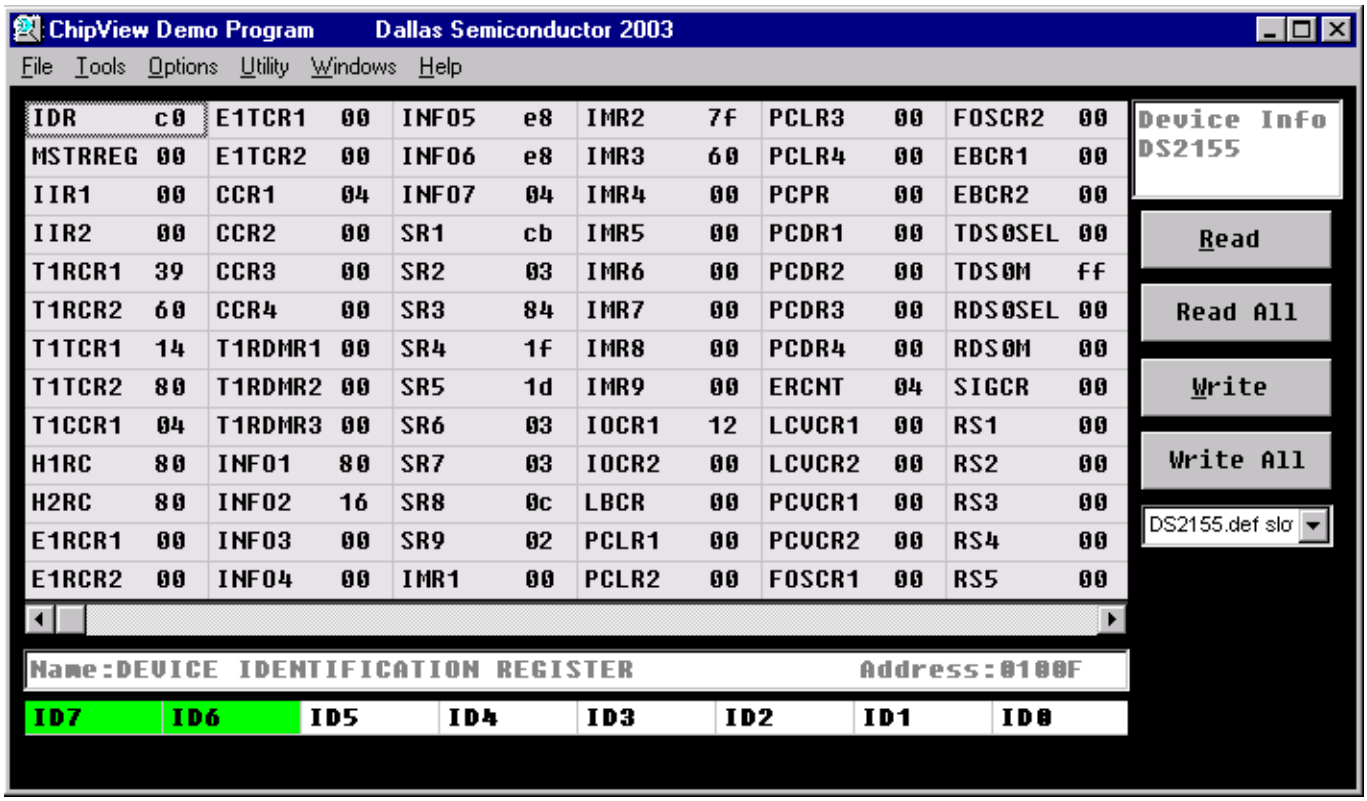
- **Toggle a bit.** Select the register in the register map and then click the bit in the bit map.
- **Write a register.** Select the register, click the Write button, and enter the value to be written.
- **Write all registers.** Click the Write All button and enter the value to be written.
- **Read a register.** Select the register in the register map and click the Read button.
- **Read all registers.** Click the Read All button.

When the Read or Read All buttons are selected, registers whose values have changed since last read are highlighted in green. This highlighting can be disabled by unchecking the Options→Highlight Changed Registers menu selection.

Multiple definition files can be loaded at the same time to control different portions of the daughter card hardware. To load an additional definition file, select File→Definition File. In the Definition File Assignment window, select the appropriate file and press the Continue button. The Register View window now shows the view defined by the new definition file. Use the pulldown menu below the command buttons to switch between definition file views. See the *Advanced Features* section for information about creating and editing definition files.

To go to Register View from other views, select Windows→Go to Register View.

Figure 2. Register View Window



Demo Mode

Demo mode provides an intuitive user interface for configuring daughter cards at a high level using option buttons and menu selections. Key status information is also displayed, such as LOS, OOF, and AIS. Figure 3 shows an example of the Demo window.

To go to the Demo window from the ChipView main menu window, follow these steps:

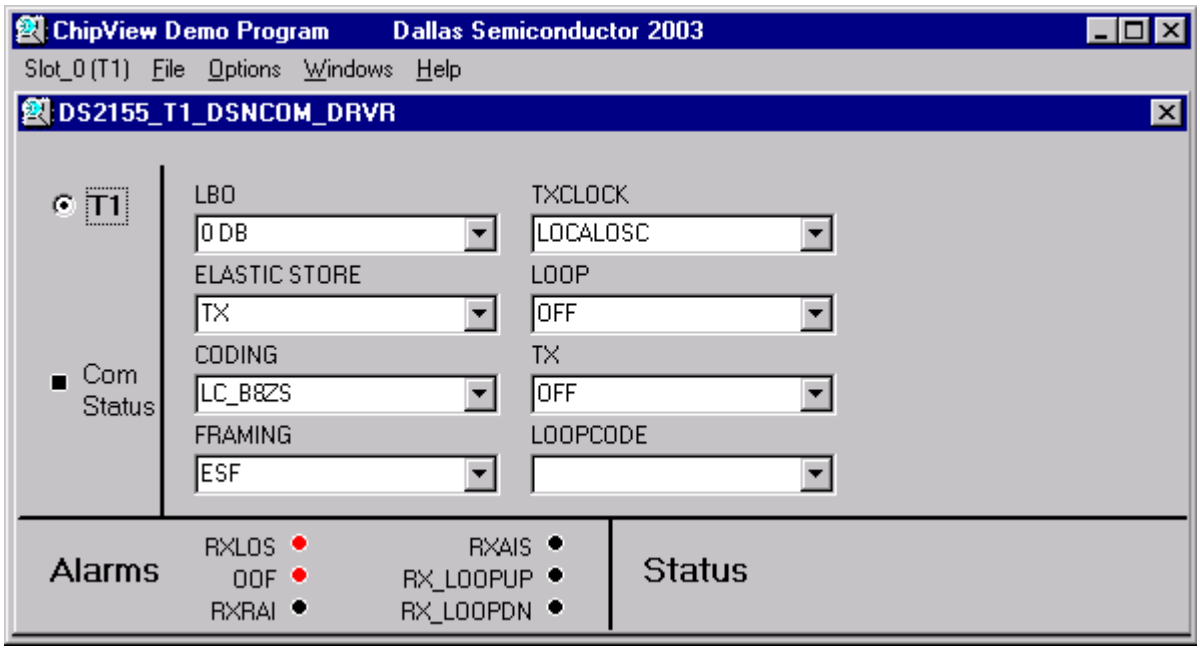
1) Push the Demo button in the main menu window. A popup window for COM port selection appears next. Select the appropriate port from the menu and click OK. Next, the Configuration File Assignment window appears. This window has subwindows to select configuration files for up to four separate daughter cards. Because the DK101 platform only interfaces with one daughter card at a time, only one subwindow is active.

2) Select a configuration file in the active subwindow from the list shown, or browse to find a file in another directory. Typically configuration file names contain the device name, e.g. DS2155.cfg. Some daughter cards ship with multiple configuration files. See the daughter card data sheet for detailed information on the use of the various files.

3) Press the Continue button.

The Demo window shows various daughter-card-specific configuration menus and status indicators. See the daughter card data sheet for details about the specific menus, selections, and indicators used. The Com Status indicator, which is common to most configuration files, changes state approximately once a second when the ChipView software is communicating properly with the daughter card.

Figure 3. Demo Window



ADVANCED FEATURES

This section discusses several advanced features of the DK101 platform. Many DK101 users do not need to read this information. The DK101 and Dallas daughter cards ship with full definition files for Register View mode and one or more configuration files for Demo mode. These files support most users very well without any need for customization. For users with more complex requirements, however, this section describes how to:

- Create and edit definition (.DEF) files
- Create and edit initialization (.INI) files
- Use Terminal mode
- Download and execute custom firmware

Creating and Editing Definition (.DEF) Files

Definition files are ASCII text files that specify register names, addresses, and bit fields, and their arrangement in the Register View window. Dallas Semiconductor distributes full definition files with each daughter card. Any edits to the Dallas definition files should be made in copies of the files and not in the originals.

The text in Figure 4 is a definition file template. Only the REGISTER, DISPLAY and END fields are required. Each field starts with the field name followed by a colon (i.e., “DEVICE:”) and ends with the next field name. The definition file fields are described in Table 1. All numbers are in decimal format, unless otherwise stated.

Figure 4. Definition File Template

```
REM: remark
DEVICE:
DSxxxx
OFFSET:
0x1000
LINKS:
1
filename
SETUP:
on
REG INI:
on
DSxxxx.INI
DEVICE ID:
on
address,rname,rtype,bus,ivalue,position,fullname,b7,b6,b5,b4,b3,b2,b1,b0,
REGISTER:
number of registers
address,rname,rtype,bus,ivalue,position,fullname,b7,b6,b5,b4,b3,b2,b1,b0,
DISPLAY:
number of columns
1,2,3,4,5,6,7,8,9,10,11,12,13,14,
END:
```

Table 1. Definition File Fields

FIELD	DESCRIPTION
REM	Used for remarks to document the definition file. Cannot be used inside another field.
DEVICE	*This field is not yet supported in the ChipView software.* The argument is a string of text that is displayed at the top of the Register View screen to help the user keep track of which definition file is currently in use.
OFFSET	When located outside the REGISTER field, the argument specifies a global address offset for all registers in the definition file. In some Dallas-made definition files OFFSET has two arguments. Older Dallas demo kit software selects the first argument. The ChipView software selects the last argument. When located inside the REGISTER field, the argument specifies a local address offset for all subsequent register listings. All register addresses following the local OFFSET field are offset by both the global and local offsets. The scope of the local offset is to the end of the REGISTER field or to the next local offset field. Arguments are in four-digit hexadecimal format of the form “0x0000.”
LINKS	Loads additional definition files. Used to accommodate more than one device on a piece of hardware or to split a large register set into smaller subsets. The first argument is a number from 1 to 10 specifying the number of definition files to link. Subsequent arguments are the filenames of the definition files being linked. Linked definition files have all the functionality of the main definition file except that the LINKS field is ignored.
SETUP	*This field is not yet supported in the ChipView software.* Enables initialization register values. The argument must be either “on” or “off.” If the argument is “on,” ChipView initializes all registers with a zero and then the initial value specified in the REGISTER field. When SETUP is “on” the REG INI field is enabled.
REG INI	*This field is not yet supported in the ChipView software.* Specifies an initialization file for initializing register values. REG INI is only enabled if the SETUP field is “on.” The first argument must be either “on” or “off.” The second argument is a valid register initialization file (.INI file). If the SETUP and REG INI fields are both “on,” registers are initialized by the values in the initialization file.
DEVICE ID	*This field is not yet supported in the ChipView software.* Defines how to determine if the device is present on the target hardware. The first argument must be either “on” or “off.” The second argument is a valid register description (see the REGISTER field for format). If the first argument is “on” the ChipView software performs a device-check read/write sequence to the register specified in the second argument. If the device check fails, a Device Not Present error is displayed.
REGISTER	Describes the registers of the target hardware. The first argument is the number of registers (1 to 255). Subsequent arguments are comma-delimited strings with 14 subfields as follows: *address,rname,rtype,bus,ivalue,position,fullname,b7,b6,b5,b4,b3,b2,b1,b0*, The number of strings must be equal to the number of registers specified in the first argument. See Table 2 for subfield definitions.
DISPLAY	*This field is not yet supported in the ChipView software. Currently, registers are displayed 14 per column in the order listed in the REGISTER field.* Specifies how to display the registers on screen. The first argument is a number from 1 to 20 that states the number of columns to be displayed. Subsequent arguments are comma-delimited strings of numbers, where each number specifies a register definition. The first register definition in the REGISTER field is 0, the second is 1, and so on. The strings of numbers can be up to 14 numbers long. The number of strings must be equal to the number of columns specified in the first argument.
END	Specifies the end of the definition file. This field has no arguments.

Table 2. Register Subfield Definitions

SUBFIELD	DESCRIPTION
address	Register address. Hexadecimal format of the form 0x0000.
rname	Register name (acronym) that is displayed in the register map display area. A string of ≤ 7 characters.
rtype	Register type 0 = invalid – not displayed, read, written or initialized 1 = read-only – cannot be written 2 = read/write – can be read and written 3 = status1 – read operation is preceded by a write of 0xFF 5 = error – cannot be written 6 = test – can be read and written 7 = status2 – read operation is followed by a write of the value read
bus	This field should be always be "1" for definition files used with DK101.
Ivalue	Initial value written to the register during initialization if the SETUP field is "on." Two-digit hexadecimal format of the form "00."
Position	Register position. Allows the user to sequentially number the register definitions for use in the DISPLAY field. These numbers are for the user only; this field is not read by the software. For proper use with the DISPLAY field, register definitions should be numbered consecutively starting from 0 with no missing or repeated numbers.
Fullname	Full register name. A string of ≤ 50 characters that is displayed at the top of the bitmap display when the register is selected in the register map.
b7, b6, b5, b4, b3, b2, b1, b0	Bit names. Each is a string of ≤ 6 characters that is displayed in the bit map display.

Creating and Editing Initialization (.INI) Files

Register View mode provides an easy method for initializing an entire register set using initialization files. To initialize the register set from an initialization file, choose File→Register .INI File→Load .INI File. To save the state of a register set to an initialization file, choose File→Register .INI File→Build .INI File. Only the registers of the active definition file are affected by these commands.

Terminal Mode

In addition to Register View mode and Demo mode, the ChipView software also offers Terminal mode, which gives direct access to the processor. The commands that can be entered from Terminal mode are listed in Table 3. The interface specifications are 57,600 baud, 8 data bits, 1 stop bit, no parity, no flow control, ANSI emulation. Locally typed characters are echoed by the DK101, not the terminal software.

Downloading and Executing Custom Firmware

To download and execute custom firmware on the DK101, do the following:

1) Create a Motorola s-record targeted to external SRAM at 80000000h.
2) Go to Terminal mode on the ChipView software.
3) Click Options→Load S Record.
4) Browse to find the appropriate s-record, select it, and click Open.
5) Wait while the s-record is downloaded to the DK101.
6) Type the "jump" command and hit the Enter key.

To return to the factory-installed DK101 firmware, press the RESET button on the DK101 board.

Table 3. Terminal Mode Commands

COMMAND	FUNCTION
AddrMap	Display the DK101 address map.
F	Display firmware version.
Help | ?	Display help text.
Jump [address]	Jump to address if given. Alternately, jump to program start location indicated by previously loaded s-record.
Load [offset]	Load Motorola s-record to memory, adding offset if present.
SetDev <0–F>	Set default device number for use with the X command.
PEEK <B | W | L> <address>	Read from <address> in byte (B), word (W) or longword (L) format
POKE <B | W | L> <address> <value>	Write <value> to <address> in byte (B), word (W) or longword (L) format.
TimInfo [verbose]	Displays information about the attached daughter card.
X <addr> [, <endaddr>] [= <value>]	Read or write to daughter card slot addresses. The fourth hex digit of the address is the device number. Addresses with fewer than four hex digits are added to the address of the default device set by the SetDev command. Examples: $ X 1020 = FF {write FFh to device 1, address 020h} $ X 1999 {read device 1, address 999h} FF {value stored in device 1, address 999h} $ X 55 {read address 55h of default device as set by SetDev) 32 {value stored in default device, address 55h} $ X 20, 30 = 5 {write 05h to default device, addresses 20h to 30h}
The following commands are used by Demo mode. They are not recommended for use in Terminal mode.	
CTRL <…> <slot>	The DK101 firmware includes T1/E1 device driver code written by NComm. CTRL calls the TE1DCTRL device driver API with the indicated parameters (see T1/E1 driver code documentation for details). The slot number on the end is not passed through to the API but is simply used to determine which device driver to call. Example: CTRL 0 400 0 {resets span 0 of slot 0}
POLL <…> <slot>	The DK101 firmware includes T1/E1 device driver code written by NComm. POLL calls the TE1DPOLL device driver API with the indicated parameters (see T1/E1 driver code documentation for details). The slot number on the end is not passed through to the API but is simply used to determine which device driver to call. Example: POLL 0 600 0 {polls for RLOS on span 0 of slot 0}

Additional Development Resources

The following resources are available for continued development using the DK101:

T1/E1 Trunk Management Software (TMS™), NComm Inc.
www.ncomm.com

CodeWarrior for MCORE Embedded Systems, Metrowerks
www.metrowerks.com/MW/Develop/Embedded/MCore/Default.htm

MCORE and GNU-MCORE Tools and Drivers, Motorola
e-www.motorola.com/webapp/sps/site/prod_summary.jsp?code=MMC2107&nodeId=03M0ym4t3ZGM0ylsb8yr

TMS is a trademark of NComm Inc.

APPENDIX

MMC2107 CPU and Memory Map

CPU Core. The DK101 development platform is based on the Motorola MMC2107 MCORE processor. The DK101 is configured with an 8MHz oscillator that is internally multiplied inside the processor to 32MHz.

Internal Flash. The MMC2107 has 128kB of internal flash memory organized as 32-bit words.

Internal SRAM. The MMC2107 has 8kB of internal SRAM organized as 32-bit words.

External SRAM. The DK101 has 256kB of external SRAM organized as 128kB x 16 and connected to chip select 0 (CS0) of the MMC2107.

Chip Selects and Memory Map. The MMC2107 has four chip-select outputs. The DK101 board uses these chip selects as defined in Table 4.

Table 4. Chip Selects and Memory Map

CHIP SELECT	FUNCTION/DEVICE	STARTING ADDRESS
CS0	External SRAM	0x80000000
CS1	Unused	0x80800000
CS2	Daughter Card Slot	0x81000000
CS3	Unused	0x81800000

FUNCTION/DEVICE	STARTING ADDRESS	ENDING ADDRESS
External SRAM	0x80000000	0x8003FFFF
Internal Flash (32 bit)	0x00000000	0x00020000
Internal SRAM (32 bit)	0x00800000	0x00802000
Internal Register Space	0x00C00000	0x00D0000B
Daughter Card Address Space	0x81000000	0x8100FFFF
Daughter Card Device (N = 0,1,2..15)	0x8100**N**000	0x8100**N**FFF

Supply Voltages

The DK101 consists entirely of 3.3V devices, however, MMC2107 requires 5V to be applied at the VPP pin during flash memory programming.

Table 5. DIP Switch Settings

SWITCH	NAME	FUNCTION (ON)	FUNCTION (OFF)
SW1.1	FLASH: PROGRAM/NORMAL	Apply 5V to VPP pin of MMC2107 to program internal flash memory. (Note 1)	Normal voltage applied to VPP pin of MMC2107 (3.3V).
SW1.2	TIM SIZE: 8/16 BITS	Processor treats the daughter card data bus as 8 bits wide.	Processor treats the daughter card data bus as 16 bits wide.
SW1.3	BOOT: INTERNAL/ EXTERNAL	Boot internal (from MMC2107 flash at address 0x00).	Boot external (at beginning of CS0). Not recommended unless user code has been loaded to external SRAM.
SW1.4	RUN: KIT/USER PROGRAM	Currently unused. Run user code in external SRAM by using the Jump command (in terminal mode) or by booting with SW1.3 OFF.	
SW1.5	USER1	Connected to the INT4 pin on the MMC2107.	
SW1.6	USER2	Connected to the $\overline{\text{INT3}}$ pin on the MMC2107 and a 10kΩ pullup to 3.3V.	
SW1.7	USER3	Unused	
SW1.8	USER4	Unused	

Note 1: Ensure 5V is available by doing one of the following:
To use the DK101's on-board DC-DC converter, set the three-position jumper marked TIM 5V SUPPLY to BOOST CONVERTER.
To use an external 5V power supply, set the TIM 5V SUPPLY jumper to EXTERNAL and connect the external power supply across the red EXTERNAL 5V and black GND jacks.

Daughter Card Interface Pin Definitions

The DK101 has one daughter card interface consisting of two 50-position connectors, J1 and J2. Table 6 shows the pin definitions for these connectors.

Table 6. Daughter Card Connector Pin Definitions

CONNECTOR J1		CONNECTOR J2	
PIN	NAME	PIN	NAME
1	+5V	1	+5V
2	GND	2	GND
3	NIMX_0	3	SNIM_NX_0
4	LA31 (LSB)	4	SNIM_B0
5	NIMX_1	5	SNIM_NX_1
6	LA30	6	SNIM_B1
7	NIMX_2	7	SNIM_NX_2
8	LA29	8	SNIM_B2
9	NIMX_3	9	SNIM_NX_3
10	LA28	10	SNIM_B3
11	NIMX_4	11	SNIM_NX_4
12	LA27	12	SNIM_B4
13	NIMX_5	13	SNIM_NX_5
14	LA26	14	SNIM_B5
15	NIMX_6	15	LA21
16	LA25	16	SNIM_B6
17	NIMX_7	17	LA20
18	LA24	18	SNIM_B7
19	NIMX_8	19	LA19
20	LA23	20	NIMD15 (LSB)
21	NIMX_9	21	LA18
22	LA22	22	NIMD14
23	NIMX_10	23	+3.3V
24	RHWL	24	NIMD13
25	NIMX_11	25	CLK16384MHZ

CONNECTOR J1		CONNECTOR J2	
PIN	NAME	PIN	NAME
26	GND	26	GND
27	NIMX_12	27	+3.3V
28	BWE0L	28	NIMD12
29	NIMX_13	29	LA17
30	HRESETL	30	NIMD11
31	NIMX_CSL	31	LA16
32	CPUCLK5	32	NIMD10
33	NIMX_ID0	33	LA15
34	NIMD7	34	NIMD9
35	NIMX_ID1	35	LA14
36	NIMD6	36	NIMD8
37	NIMX_ID2	37	LA13
38	NIMD5	38	FPGAOEL
39	NIMX_ID3	39	LA12
40	NIMD4	40	BWE1L
41	CLK44736MHZ	41	LA11
42	NIMD3	42	GND
43	N.C.	43	+2.5V
44	NIMD2	44	CLK1544MHZ
45	IRQ5L	45	+5V
46	NIMD1	46	GND
47	IRQ	47	CLK20MHZ
48	NIMD0 (MSB)	48	CLK3088MHZ
49	+5V	49	+5V
50	GND	50	GND

UPDATES AND ADDITIONAL DOCUMENTATION

Software updates, IC data sheets, and daughter card documentation are available on our website, www.maxim-ic.com/telecom.

TECHNICAL SUPPORT

For additional technical support, please e-mail your questions to telecom.support@dalsemi.com.

SCHEMATICS

The installation program for the ChipView software also loads a .PDF file containing the DK101 schematics. To access this file, click the Start button on the Windows toolbar and select: Programs→ChipView→DK101 Schematics.