



Evaluation Board for AD5520 Single Channel Parametric Unit

EVAL-AD5520

FEATURES

Full Featured Evaluation Board
Direct Hook up to Printer Port of IC
PC Software for control of PMU

INTRODUCTION

This Technical Note describes the evaluation board for the AD5520 single channel parametric unit.

The AD5520 is a single channel per pin Parametric Measurement Unit (PPMU) for use in semiconductor automatic test equipment. It contains programmable modes to force a pin voltage and measure the corresponding current, or force a current and measure the voltage. The PPMU can force a voltage from -11V to +11V or currents up to ± 4 mA. The device provides a force sense capability to ensure accuracy at the tester pin. A guard output is also available to drive the shield of a force/sense pair. The AD5520 is available in a 64 lead LQFP package.

Full data on the AD5520 may be found in the data sheet available from Analog Devices and should be consulted in conjunction with this Technical Note when using the Evaluation Board.

OPERATING THE AD5520 EVALUATION BOARD Power Supplies

The following external supplies must be provided: + 5V between the V_{CC} and DGND inputs for the digital supply of the AD5520, the latches and the relays. V_{DD} and V_{SS} should be supplied with $\pm 15V$ respectively to power the AD5520 and the AD815 buffer. Note that V_{DD} and V_{SS} must provide sufficient headroom for the force and measure voltage range. In addition to the supply voltages, it is also necessary to provide the following voltage levels for the clamp, comparator and the force input pin - CLL, CLH, CPL, CPH and FIN - SMB connections are provided for these voltage inputs. To use the evaluation board, it will also be necessary to provide a DUT connected via the gold pins.

Both AGND and DGND inputs are provided on the board. The AGND and DGND planes are connected at one location close to the AD5520. It is recommended not to connect AGND and DGND elsewhere in the system to avoid ground loop problems. REFGND is routed back to AGND at the power block to maintain a clean ground reference for accurate measurements.

Each supply is decoupled to the relevant ground plane with $10\mu F$ and $0.1\mu F$ capacitors. The device supply pin is again decoupled with a $10\mu F$ and $0.1\mu F$ capacitor pair to the relevant ground plane.

Care should be taken when replacing devices, ensure that the pins line up correctly with the PCB pads.



REV. PrB

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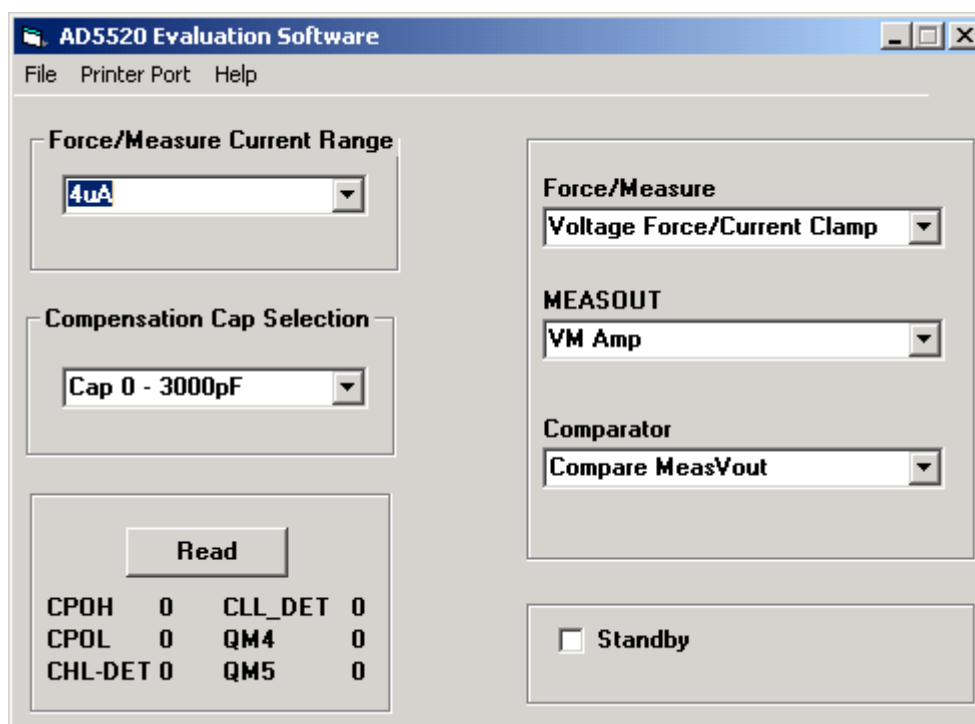
One Technology Way, P.O. Box 9106, Norwood, MA 02062-9106, U.S.A.
Tel: 781/329-4700 World Wide Web Site: <http://www.analog.com>
Fax: 781/326-8703 Analog Devices, Inc., 2003

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EVALUATION BOARD SOFTWARE

Software Installation

The AD5520 evaluation kit consists of self-installing software on CD-ROM. In the event of the setup file not running automatically, run the file AD5520Eval.exe from the CD-ROM. Software is compatible with Win95 to Windows2000. Ensure that the Centronics cable connects the PC to the AD5520 eval board. Run ad5520.exe from the Analog Devices Menu. The main screen with drop down menus (File, Printer Port and Help) looks as follows:



Drop down boxes allow user selection of force/measure function, force/measure current range, compensation capacitor selection, comparator strobing and connection of MEASOUT to the VM Amplifier or IM amplifier.

Digital outputs such as the comparator and clamp detect functions can be read through the READ function - simply click the READ button to update the corresponding bit states.

The AD5520 can be placed in standby mode by using the standby checkbox.

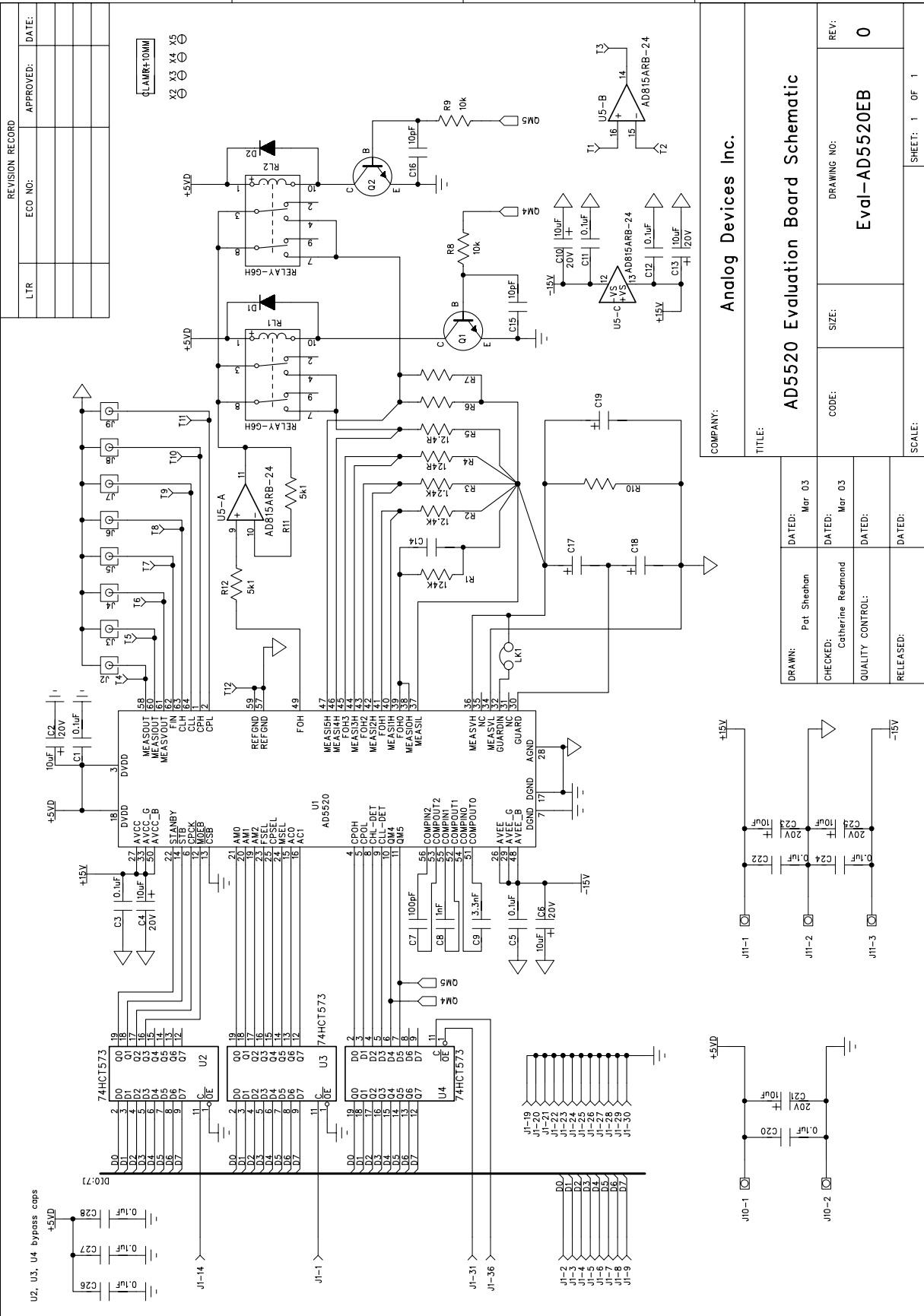
LINK OPTIONS

There is one link option on the evaluation board which should be set for the required operating setup before using the board. The function of this link options is as follows.

Link No.	Function
LK1	Connects the Guard input to MeasVH.

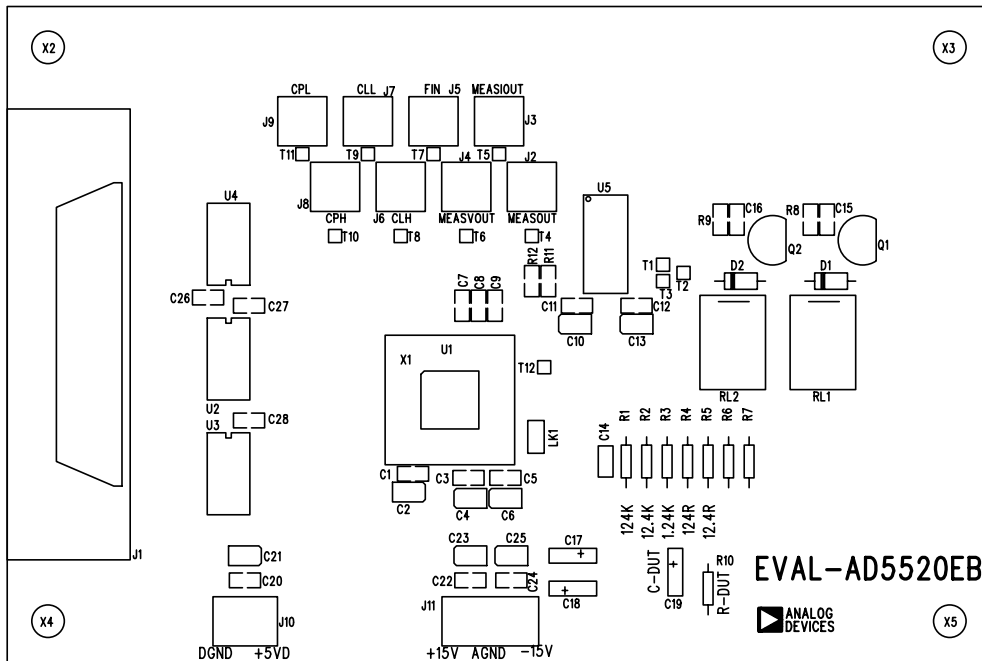
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REVISION RECORD	
LTR	ECO NO:
	APPROVED:
	DATE:



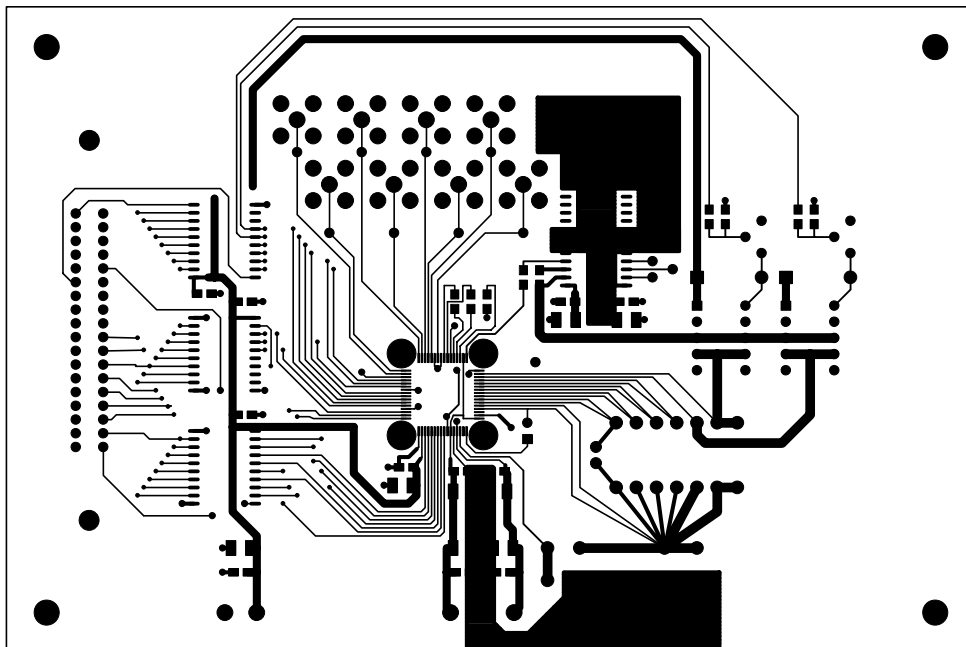
COMPANY:		Analog Devices Inc.	
TITLE:		AD5520 Evaluation Board Schematic	
DRAWN:	Pat Sheehan	DATED:	Mar 03
CHECKED:	Catherine Redmond	DATED:	Mar 03
QUALITY CONTROL:		RELEASED:	
CODE:		SCALE:	1 OF 1
SIZE:		DRAWING NO:	Eval-AD5520EB
REV:	0	SHEET:	1 OF 1

EVAL-AD5520



EVAL-AD5520EB - Component Side View

Silkscreen



EVAL-AD5520EB - Component Side View Component Side - Layer 1

EVAL-AD5520

Component Listing

Qty	Reference Designator	Description	Supplier/Number	
C1	CAP	0.1uF 10%	FEC 499-687	0805
C2	CAP+	10uF 20V	FEC 197-427	CAP\TAJ_B
C3	CAP	0.1uF 10%	FEC 499-687	0805
C4	CAP+	10uF 20V	FEC 197-427	CAP\TAJ_B
C5	CAP	0.1uF 10%	FEC 499-687	0805
C6	CAP+	10uF 20V	FEC 197-427	CAP\TAJ_B
C7	CAP	100pF	FEC 360-6028	0805
C8	CAP	1nF	FEC 301-9871	0805
C9	CAP	3.3nF	FEC 644-146	0805
C10	CAP+	10uF 20V	FEC 197-427	CAP\TAJ_B
C11	CAP	0.1uF 10%	FEC 499-687	0805
C12	CAP	0.1uF 10%	FEC 499-687	0805
C13	CAP+	10uF 20V	FEC 197-427	CAP\TAJ_B
C14	CAP		not populated	CAP\MR04
C15	CAP	10pF	FEC 499-158	0805
C16	CAP	10pF	FEC 499-158	0805
C17	CAP+		not populated	CAP\CAP+
C18	CAP+		not populated	CAP\CAP+
C19	CAP+		not populated	CAP\CAP+
C20	CAP	0.1uF 10%	FEC 499-687	0805
C21	CAP+	10uF 20V	FEC 197-427	CAP\TAJ_B
C22	CAP	0.1uF 10%	FEC 499-687	0805
C23	CAP+	10uF 20V	FEC 197-427	CAP\TAJ_B
C24	CAP	0.1uF 10%	FEC 499-687	0805
C25	CAP+	10uF 20V	FEC 197-427	CAP\TAJ_B
C26	CAP	0.1uF 10%	FEC 499-687	0805
C27	CAP	0.1uF 10%	FEC 499-687	0805
C28	CAP	0.1uF 10%	FEC 499-687	0805
D1	DIODE 1N4001		FEC 365-117	DO35
D2	DIODE 1N4001		FEC 365-117	DO35
J1	CENTRONICS		FEC 147-753	36WAY
J2-9	SMB		SMB	
J10	CON\POWER		FEC 151-789	CON\POWER
J11	CON\POWER3		FEC 151-790	CON\POWER3
LK1	JUMPER		FEC 511-705 & 150-411	SIP-2P
Q1	BC548		FEC 933-910	TO-92
Q2	BC548		FEC 933-910	TO-92
R1	RES	124K, 0.10%	FEC 341-186	R1/8W
R2	RES	12.4K, 0.10%	FEC 340-224	R1/8W
R3	RES	1.24K 0.10%	FEC 339-260	R1/8W
R4	RES	124R 0.10%	FEC 338-308	R1/8W
R5	RES	12.4R 0.10%		
R6	RES	3.16R 0.10%		
R7	RES		not populated	
R8	RES	10K	FEC 911-975	0805
R9	RES	10K	FEC 911-975	0805
R10	RES		not populated	
R11	RES	5K1	FEC 321-8144	0805
R12	RES	5K1	FEC 321-8144	0805
RL1	RELAY-G6H		OMRON G6H-5V	RELAY-G6H
RL2	RELAY-G6H		OMRON G6H-5V	RELAY-G6H
T1-12	TESTPOINT		FEC 240-345	TESTPOINT
U1	AD5520JST			LQFP64
U2, U3, U4	CD74HC573M		FEC 539-521	SO20
U5	AD815ARB-24			SO24WB
X2, X3, X4, X5	MTHOLE2		Stick-on feet	MTHOLE2