FEATURES

- **Single power supply**
- **AC-coupled outputs**
- **SMA I/O connectors**
- **DIP switch controlled divider selection**
- **DIP switch controlled reset function**

AVAILABLE MEASUREMENTS

The SY89871U evaluation board allows the following measurements:

- Frequency performance
- Output eye pattern generation
- Jitter
- Output rise/fall time
- BER testing

DESCRIPTION

This manual provides information on the SY89871U evaluation board. It should be used in conjunction with the SY89871U datasheet, which contains full specifications of the SY89871U.

The SY89871U evaluation board enables fast and thorough evaluation of the SY89871U fanout buffer/ translator. The board is designed in multiple layers for better performance and simpler signal evaluation.

EVALUATION BOARD

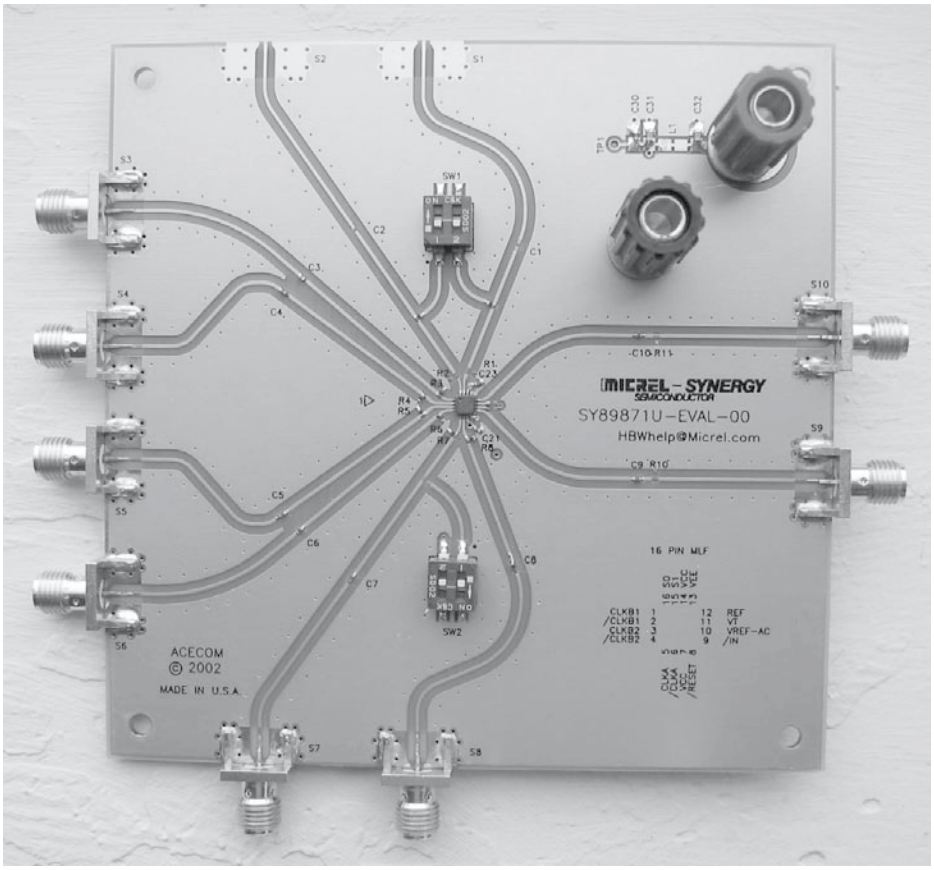

Figure 1. SY89871U Evaluation Board

MEASUREMENT SETUP

Equipment used for time domain measurements:

- Agilent 83752A Synthesized Sweeper
- Agilent 70004A Display
- Agilent 70843B Error Performance Analyzer
- Agilent 86100A Wide-bandwidth Oscilloscope
- Agilent E3620A DC Power Supply
- Matched high-speed cables w/SMA connectors

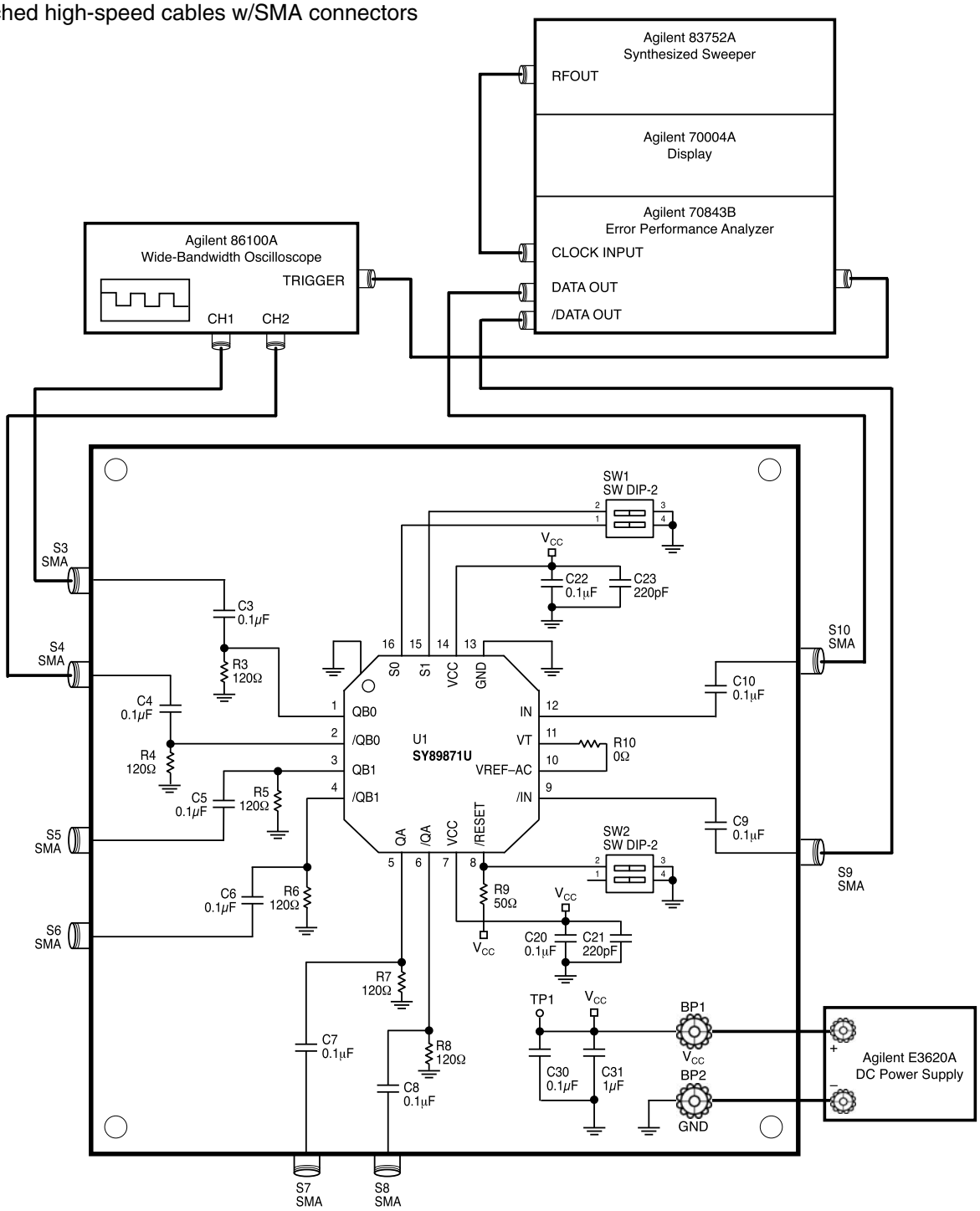

Figure 2. Setup for Measurements

SETUP FOR MEASUREMENTS (FIGURE 2)

1. Connect power; a single power supply is used. Connect BP1 (V_{CC}) to +3.3V. Connect BP2 (GND) binding post to supply ground. See SY89871U datasheet for power supply range.
2. Set SW1 to choose divider operation.
   a. Set switch 1 off to set S0 high.
   b. Set switch 2 off to set S1 high.
3. Set SW2 to reset device.
   a. Set switch 2 on to reset device.
   b. Switch 1 has no effect on operation.
4. Set signal generator for appropriate output swing amplitude, data rate and bit pattern, as allowed by the SY89871U datasheet. There is no need to set DC-offset as the board is AC-coupled. Ensure the signal generator is capable of driving AC-coupled loads. The SY89871U evaluation board does not provide 50Ω source termination resistors.
5. Connect desired SY89871U outputs to the oscilloscope. Unused outputs of a switching pair must be terminated. Ensure the oscilloscope is triggered properly. The oscilloscope must have internal 50Ω terminations to ground. Choose desired measurements on oscilloscope.
   a. Please refer to oscilloscope's manual for eye pattern, total jitter and rise/fall measurements.
   b. For BER testing, feedback an output to the BERT data input. After resetting the error count, the error count should remain zero. See BERT manual for more details.

BILL OF MATERIALS

Item	Part Number	Manufacturer	Description	Qty.
BP1	7004K-ND	Keystone[1]	Red binding post	1
BP2	7005K-ND	Keystone[1]	Black binding post	1
C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C20, C22, C30	PCC1731CT-ND	Panasonic[2]	0.1µF surface mount capacitor, size 0402	13
C21, C23	PCC1706CT-ND	Panasonic[2]	220pF surface mount capacitor, size 0402	2
C31, C32	PCC1915CT-ND	Panasonic[2]	1µF surface mount capacitor, size 0603	2
R3, R4, R5, R6, R7, R8	P130LCT-ND		130Ω surface mount resistor, size 0402	6
R9	P49.9LCT-ND		49.9Ω surface mount resistor, size 0402	1
R10	311.0.0JCT-ND		0Ω Phicomp surface mount resistor, size 0402	1
S3, S4, S5, S6, S7, S8, S9, S10	142-0701-851	Keystone[1]	End launch SMA	8
SW1, SW2	CKN3054-ND		2-DIP switch	2
TP1	TSW–101–07–S–S	Samtec[3]	1-header through hole terminal strip	1
U1	**SY89871U**	Micrel Semiconductor[4]		1

1. Keystone tel: 800-247-8256

2. Panasonic tel: 847-468-5624

3. Samtec tel: 800-726-8329

4. Micrel Semiconductor tel: 408-944-0800

MICREL, INC. 1849 FORTUNE DRIVE SAN JOSE, CA 95131 USA

TEL + 1 (408) 944-0800 FAX + 1 (408) 944-0970 WEB http://www.micrel.com