

US006487688B1

(12) United States Patent

Nadeau-Dostie

(10) Patent No.: US 6,487,688 B1

(45) Date of Patent: Nov. 26, 2002

(54) METHOD FOR TESTING CIRCUITS WITH TRI-STATE DRIVERS AND CIRCUIT FOR USE THEREWITH

(75) Inventor: Benoit Nadeau-Dostie, Aylmer (CA)

(73) Assignee: Logicvision, Inc., San Jose, CA (US)

(*) Notice: Subject to any disclaimer, the term of this

patent is extended or adjusted under 35

U.S.C. 154(b) by 0 days.

(21) Appl. No.: 09/472,386

(22) Filed: Dec. 23, 1999

(56) References Cited

U.S. PATENT DOCUMENTS

4,455,453 A	-}=	6/1984	Parasekvakos et al. 379/106.06
4,845,659 A	*	7/1989	Hrusecky 71/222
4,947,357 A	*	8/1990	Stewart et al 714/726
5,136,185 A		8/1992	Fleming et al 307/443
5,285,119 A		2/1994	Takahashi 307/473

5,404,359 A	4/1995	Gillenwater et al	371/22.5
5,513,190 A	4/1996	Johnson et al	371/22.5
5,528,601 A	6/1996	Schmookler	371/22.3
5,648,733 A	7/1997	Worrell et al	326/86
6.029.263 A	* 2/2000	Gibson	. 714/726

FOREIGN PATENT DOCUMENTS

EP	0 454 052 A2	10/1991	G06F/11/26
JP	05240917	9/1993	G01R/31/28
JP	07073067	3/1995	G06F/11/22
JP	11094914	9/1999	G01R/31/28

^{*} cited by examiner

Primary Examiner—David Ton

(74) Attorney, Agent, or Firm—Sheridan Ross P.C.

(57) ABSTRACT

A scan-testing method for circuits having tri-state bus drivers disables all drivers during scan intervals and enables at most one of the bus drivers during the capture interval. A driver select signal is generated for each bus driver and gated with a corresponding circuit functional enable signal to generate a driver enable signal. A driver is selected by loading a driver select code into memory elements during the scan-in sequence and decoding the driver select code to produce the driver select signals.

30 Claims, 4 Drawing Sheets

