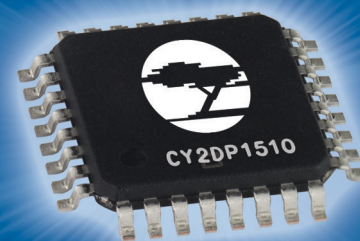CYPRESS
High-Performance Buffers

INTRODUCTION

Cypress's family of ultra-low jitter, non-PLL clock fanout High-Performance Buffers (HPBs) delivers up to 10 high-frequency differential outputs (LVPECL, LVDS, or CML). The frequency of these outputs is up to 1.5 GHz. HPBs deliver the industry's lowest additive jitter (0.06 ps typical RMS phase jitter[1]) and can provide complete high-frequency, low-jitter clock tree solutions in conjunction with FleXO™ clock generators. HPBs extend Cypress's clock distribution capabilities (currently up to 400 MHz) into the high-performance domain required by networking switches, routers, high-end servers, wireless basestations, enterprise storage, and test equipment.

PRODUCT PORTFOLIO

The HPB family consists of seven different MPNs, each designed to target alternative source sockets of high-volume competitor products.

Part Number	Description	Package
CY2DP1510	1:10 LVPECL buffer with selectable input	32-pin TQFP
CY2DL1510	1:10 LVDS buffer	32-pin TQFP
CY2DP1504	1:4 LVPECL buffer with selectable input	20-pin TSSOP
CY2DP1502	1:2 LVPECL buffer	8-pin SOIC 8-pin TSSOP
CY2CP1504	1:4 LVCMOS to LVPECL buffer with selectable input	20-pin TSSOP
CY2DM1502	1:2 CML buffer	8-pin TSSOP
CY2DL1504	1:4 LVDS/LVPECL to LVDS buffer with selectable input	20-pin TSSOP

[1]156.25 MHz carrier frequency, 12 kHz ~ 20 MHz offset range

FEATURES

2.5 V OR 3.3 V OPERATION

ULTRA-LOW ADDITIVE RMS PHASE JITTER: 0.06 PS TYPICAL

UP TO 10 OUTPUTS

OUTPUT FREQUENCY UP TO 1.5 GHZ

SUPPORTED OUTPUTS: LVPECL, LVDS, OR CML

SUPPORTED INPUTS: LVDS, LVPECL, OR LVCMOS

FAST OUTPUT RISE/FALL TIMES: AS LOW AS 250 PS MAX

LOW OUTPUT-OUTPUT SKEW: AS LOW AS 20 PS

COMMERCIAL AND INDUSTRIAL TEMPERATURE RANGES

PACKAGES: 32-TQFP, 20-TSSOP, 8-TSSOP, 8-SOIC

PIN-COMPATIBLE FOOTPRINTS TO HIGH-VOLUME COMPETITOR PRODUCTS

ADVANTAGES

ULTRA-LOW ADDITIVE JITTER IMPROVES SYSTEM TIMING MARGIN FOR HIGH-PERFORMANCE APPLICATIONS

FAST SIGNAL RISE/FALL TIMES MEET THE LATEST HIGH-SPEED INTERFACE REQUIREMENTS

LOW OUTPUT-OUTPUT SKEW ENSURES PREDICTABLE TIMING RELATIONSHIPS OF OUTPUT SIGNALS

CYPRESS IS A RECOGNIZED HIGH-QUALITY, BROAD-BASED SUPPLIER

CYPRESS
EMBEDDED IN TOMORROW™

COMPETITION COMPARISON

	Two Output LVPECL (8L SOIC)	Two Output LVPECL (8L TSSOP)	Four Output LVDS	10 Output LVPECL
CYPRESS	52 fs	58 fs	59 fs	56 fs
Competitor 1	128 fs	153 fs	216 fs	146 fs
Competitor 2	-	121 fs	-	105 fs
Competitor 3	-	-	-	125 fs

TARGET APPLICATIONS

Cypress's HPB products are ideally suited for systems that have a large number of high-speed interface ports (for example, Gigabit Ethernet) or a large number of components, each requiring a copy of identical clock frequencies with minimal additive phase jitter to ensure good system timing margin. These include mid- to high-end routers and switches, wireless basestations, and blade servers.

HPBs are used in a variety of applications or systems with high-speed serial (SERDES) interfaces that require differential clocks such as:

Platforms	High-Speed Interfaces
Switches and routers	Gigabit/10-Gigabit Ethernet (GbE, 10GbE)
Wireless basestations	PCI-Express
Optical networking (PON, MSTP)	FibreChannel
Blade servers	SONET/SDH
Test equipment	CPRI

Examples of ICs that could be clocked by HPBs are:

TYPE	EXAMPLE
FPGA	ECP3 family (Lattice) Virtex-5 (Xilinx)
Network processors	MPC8358, MPC8569 (Freescale PowerQUICC II Pro) 2020 (Freescale QorIQ P2 series)
PLDs	LCMXO1200C (Lattice MachXO)
Framers	PEF22554HT (Infineon QuadFALC)
PHY	BCM5241 (Broadcom 10/100BASE-TX Transceiver) BCM5461 (Broadcom Gigabit Transceiver)

GET STARTED NOW

Go to www.cypress.com/timing or email clocks@cypress.com for more information on HPBs, to receive part number recommendations, or to submit requests.

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