



# FPGA Comparator Resource Usage

## Summary

This quick reference provides detailed information about resource usage of all pre-synthesized Comparator cores.

Core Reference

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## Comparator

The available Comparator cores are listed as follows:

<i>COMP2B</i>	<i>COMP2S</i>	<i>COMP3B</i>	<i>COMP3S</i>
<i>COMP4B</i>	<i>COMP4S</i>	<i>COMP5B</i>	<i>COMP5S</i>
<i>COMP6B</i>	<i>COMP6S</i>	<i>COMP7B</i>	<i>COMP7S</i>
<i>COMP8B</i>	<i>COMP8S</i>	<i>COMP9B</i>	<i>COMP9S</i>
<i>COMP10B</i>	<i>COMP10S</i>	<i>COMP12B</i>	<i>COMP12S</i>
<i>COMP16B</i>	<i>COMP16S</i>	<i>COMP32B</i>	<i>COMPM2B</i>
<i>COMPM2S</i>	<i>COMPM3B</i>	<i>COMPM3S</i>	<i>COMPM4B</i>
<i>COMPM4S</i>	<i>COMPM5B</i>	<i>COMPM5S</i>	<i>COMPM6B</i>
<i>COMPM6S</i>	<i>COMPM7B</i>	<i>COMPM7S</i>	<i>COMPM8B</i>
<i>COMPM8S</i>	<i>COMPM9B</i>	<i>COMPM9S</i>	<i>COMPM10B</i>
<i>COMPM10S</i>	<i>COMPM12B</i>	<i>COMPM12S</i>	<i>COMPM16B</i>
<i>COMPM16S</i>	<i>COMPM32B</i>		

**COMP2B****2-Bit Identity Comparator, Bus Version**

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			1										
Cyclone		1	1										
Cyclone2		1	1										
Cyclone3		1	1										
Stratix		1	1										
Stratix2		1	1										
Stratix3			1										
StratixGX		1	1										
Stratix2GX			1										
Max2		1	1										
Max3000a	1	1											
Max7000b	1	1											
Max7000ae	1	1											
Max7000s	1	1											
Spartan2		2	1										
Spartan2E		2	1										
Spartan3		2	1										
Spartan3A		2	1										
Spartan3ADSP		2	1										
Spartan3AN		2	1										
Spartan3E		2	1										
Spartan3L		2	1										
Virtex		2	1										
Virtex2		2	1										
Virtex2p		2	1										
VirtexE		2	1										
Virtex4		2	1										
Virtex5		2											
CoolRunner2	1												
CoolRunnerXpla3	1												
Xc9500	1												
Xc9500XL	1												
Xc9500XV	1												
ProAsicPlus		3											
ProAsic3		2											
ProAsic3E		2											
Fusion		2											
EC		2	1										
ECP		2	1										
ECP2		2	1										
ECP2M		2	1										
SC		2	1										
MACHXO		2	1										
XP		2	1										
XP2		2	1										

## COMP2S

## 2-Bit Identity Comparator, Single Pin Version

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			1										
Cyclone		1	1										
Cyclone2		1	1										
Cyclone3		1	1										
Stratix		1	1										
Stratix2		1	1										
Stratix3			1										
StratixGX		1	1										
Stratix2GX			1										
Max2		1	1										
Max3000a	1	1											
Max7000b	1	1											
Max7000ae	1	1											
Max7000s	1	1											
Spartan2		2	1										
Spartan2E		2	1										
Spartan3		2	1										
Spartan3A		2	1										
Spartan3ADSP		2	1										
Spartan3AN		2	1										
Spartan3E		2	1										
Spartan3L		2	1										
Virtex		2	1										
Virtex2		2	1										
Virtex2p		2	1										
VirtexE		2	1										
Virtex4		2	1										
Virtex5		2											
CoolRunner2	1												
CoolRunnerXpla3	1												
Xc9500	1												
Xc9500XL	1												
Xc9500XV	1												
ProAsicPlus		3											
ProAsic3		2											
ProAsic3E		2											
Fusion		2											
EC		2	1										
ECP		2	1										
ECP2		2	1										
ECP2M		2	1										
SC		2	1										
MACHXO		2	1										
XP		2	1										
XP2		2	1										

**COMP3B****3-Bit Identity Comparator, Bus Version**

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			1										
Cyclone		2	2										
Cyclone2		2	2										
Cyclone3		2	2										
Stratix		2	2										
Stratix2		2	2										
Stratix3			1										
StratixGX		2	2										
Stratix2GX			1										
Max2		2	2										
Max3000a	2	2											
Max7000b	2	2											
Max7000ae	2	2											
Max7000s	2	2											
Spartan2		2	2										
Spartan2E		2	2										
Spartan3		2	2										
Spartan3A		2	2										
Spartan3ADSP		2	2										
Spartan3AN		2	2										
Spartan3E		2	2										
Spartan3L		2	2										
Virtex		2	2										
Virtex2		2	2										
Virtex2p		2	2										
VirtexE		2	2										
Virtex4		2	2										
Virtex5		2											
CoolRunner2	1												
CoolRunnerXpla3	1												
Xc9500	1												
Xc9500XL	1												
Xc9500XV	1												
ProAsicPlus		4											
ProAsic3		4											
ProAsic3E		4											
Fusion		4											
EC		2	2										
ECP		2	2										
ECP2		2	2										
ECP2M		2	2										
SC		2	2										
MACHXO		2	2										
XP		2	2										
XP2		2	2										

## COMP3S

## 3-Bit Identity Comparator, Single Pin Version

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			1										
Cyclone		2	2										
Cyclone2		2	2										
Cyclone3		2	2										
Stratix		2	2										
Stratix2		2	2										
Stratix3			1										
StratixGX		2	2										
Stratix2GX			1										
Max2		2	2										
Max3000a	2	2											
Max7000b	2	2											
Max7000ae	2	2											
Max7000s	2	2											
Spartan2		2	2										
Spartan2E		2	2										
Spartan3		2	2										
Spartan3A		2	2										
Spartan3ADSP		2	2										
Spartan3AN		2	2										
Spartan3E		2	2										
Spartan3L		2	2										
Virtex		2	2										
Virtex2		2	2										
Virtex2p		2	2										
VirtexE		2	2										
Virtex4		2	2										
Virtex5		2											
CoolRunner2	1												
CoolRunnerXpla3	1												
Xc9500	1												
Xc9500XL	1												
Xc9500XV	1												
ProAsicPlus		4											
ProAsic3		4											
ProAsic3E		4											
Fusion		4											
EC		2	2										
ECP		2	2										
ECP2		2	2										
ECP2M		2	2										
SC		2	2										
MACHXO		2	2										
XP		2	2										
XP2		2	2										

## COMP4B

## 4-Bit Identity Comparator, Bus Version

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arria7x			2										
Cyclone		3	3										
Cyclone2		3	3										
Cyclone3		3	3										
Stratix		3	3										
Stratix2		3	3										
Stratix3			2										
StratixGX		3	3										
Stratix2GX			2										
Max2		3	3										
Max3000a	2	2											
Max7000b	2	2											
Max7000ae	2	2											
Max7000s	2	2											
Spartan2		4	3										
Spartan2E		4	3										
Spartan3		4	3										
Spartan3A		4	3										
Spartan3ADSP		4	3										
Spartan3AN		4	3										
Spartan3E		4	3										
Spartan3L		4	3										
Virtex		4	3										
Virtex2		4	3										
Virtex2p		4	3										
VirtexE		4	3										
Virtex4		4	3										
Virtex5		2											
CoolRunner2	1												
CoolRunnerXpla3	1												
Xc9500	1												
Xc9500XL	1												
Xc9500XV	1												
ProAsicPlus		6											
ProAsic3		5											
ProAsic3E		5											
Fusion		5											
EC		4	3										
ECP		4	3										
ECP2		4	3										
ECP2M		4	3										
SC		4	3										
MACHXO		4	3										
XP		4	3										
XP2		4	3										

## COMP4S

## 4-Bit Identity Comparator, Single Pin Version

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arria7x			2										
Cyclone		3	3										
Cyclone2		3	3										
Cyclone3		3	3										
Stratix		3	3										
Stratix2		3	3										
Stratix3			2										
StratixGX		3	3										
Stratix2GX			2										
Max2		3	3										
Max3000a	2	2											
Max7000b	2	2											
Max7000ae	2	2											
Max7000s	2	2											
Spartan2		4	3										
Spartan2E		4	3										
Spartan3		4	3										
Spartan3A		4	3										
Spartan3ADSP		4	3										
Spartan3AN		4	3										
Spartan3E		4	3										
Spartan3L		4	3										
Virtex		4	3										
Virtex2		4	3										
Virtex2p		4	3										
VirtexE		4	3										
Virtex4		4	3										
Virtex5		2											
CoolRunner2	1												
CoolRunnerXpla3	1												
Xc9500	1												
Xc9500XL	1												
Xc9500XV	1												
ProAsicPlus		6											
ProAsic3		5											
ProAsic3E		5											
Fusion		5											
EC		4	3										
ECP		4	3										
ECP2		4	3										
ECP2M		4	3										
SC		4	3										
MACHXO		4	3										
XP		4	3										
XP2		4	3										

## COMP5B

## 5-Bit Identity Comparator, Bus Version

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			3										
Cyclone		3	3										
Cyclone2		3	3										
Cyclone3		3	3										
Stratix		3	3										
Stratix2		3	3										
Stratix3			3										
StratixGX		3	3										
Stratix2GX			2										
Max2		3	3										
Max3000a	2	2											
Max7000b	2	2											
Max7000ae	2	2											
Max7000s	2	2											
Spartan2		4	3										
Spartan2E		4	3										
Spartan3		4	3										
Spartan3A		6	4										
Spartan3ADSP		6	4										
Spartan3AN		6	4										
Spartan3E		4	3										
Spartan3L		6	4										
Virtex		4	3										
Virtex2		4	3										
Virtex2p		4	3										
VirtexE		4	3										
Virtex4		4	3										
Virtex5		2											
CoolRunner2	1												
CoolRunnerXpla3	1												
Xc9500	1												
Xc9500XL	1												
Xc9500XV	1												
ProAsicPlus		8											
ProAsic3		6											
ProAsic3E		7											
Fusion		7											
EC		4	3										
ECP		4	3										
ECP2		6	4										
ECP2M		6	4										
SC		4	4										
MACHXO		4	4										
XP		4	4										
XP2		4	3										



## COMP5S

## 5-Bit Identity Comparator, Single Pin Version

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			2										
Cyclone		3	3										
Cyclone2		3	3										
Cyclone3		3	3										
Stratix		3	3										
Stratix2		3	3										
Stratix3			2										
StratixGX		3	3										
Stratix2GX			2										
Max2		3	3										
Max3000a	2	2											
Max7000b	2	2											
Max7000ae	2	2											
Max7000s	2	2											
Spartan2		4	3										
Spartan2E		4	3										
Spartan3		4	3										
Spartan3A		6	4										
Spartan3ADSP		6	4										
Spartan3AN		6	4										
Spartan3E		4	3										
Spartan3L		6	4										
Virtex		4	3										
Virtex2		4	3										
Virtex2p		4	3										
VirtexE		4	3										
Virtex4		4	3										
Virtex5		2											
CoolRunner2	1												
CoolRunnerXpla3	1												
Xc9500	1												
Xc9500XL	1												
Xc9500XV	1												
ProAsicPlus		8											
ProAsic3		6											
ProAsic3E		7											
Fusion		7											
EC		4	3										
ECP		4	3										
ECP2		6	4										
ECP2M		6	4										
SC		4	4										
MACHXO		4	4										
XP		4	4										
XP2		4	3										

## COMP6B

## 6-Bit Identity Comparator, Bus Version

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			3										
Cyclone		4	4										
Cyclone2		4	4										
Cyclone3		4	4										
Stratix		4	4										
Stratix2		4	4										
Stratix3			3										
StratixGX		4	4										
Stratix2GX			3										
Max2		4	4										
Max3000a	3	3											
Max7000b	3	3											
Max7000ae	3	3											
Max7000s	3	3											
Spartan2		6	4										
Spartan2E		6	4										
Spartan3		6	4										
Spartan3A		8	5										
Spartan3ADSP		8	5										
Spartan3AN		8	5										
Spartan3E		6	4										
Spartan3L		8	5										
Virtex		6	4										
Virtex2		6	4										
Virtex2p		6	4										
VirtexE		6	4										
Virtex4		6	4										
Virtex5		4											
CoolRunner2	2												
CoolRunnerXpla3	2												
Xc9500	1												
Xc9500XL	1												
Xc9500XV	1												
ProAsicPlus		9											
ProAsic3		7											
ProAsic3E		8											
Fusion		8											
EC		4	4										
ECP		4	4										
ECP2		6	5										
ECP2M		6	5										
SC		6	5										
MACHXO		6	5										
XP		6	5										
XP2		4	4										

## COMP6S

## 6-Bit Identity Comparator, Single Pin Version

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			3										
Cyclone		4	4										
Cyclone2		4	4										
Cyclone3		4	4										
Stratix		4	4										
Stratix2		4	4										
Stratix3			3										
StratixGX		4	4										
Stratix2GX			3										
Max2		4	4										
Max3000a	3	3											
Max7000b	3	3											
Max7000ae	3	3											
Max7000s	3	3											
Spartan2		6	4										
Spartan2E		6	4										
Spartan3		6	4										
Spartan3A		8	5										
Spartan3ADSP		8	5										
Spartan3AN		8	5										
Spartan3E		6	4										
Spartan3L		8	5										
Virtex		6	4										
Virtex2		6	4										
Virtex2p		6	4										
VirtexE		6	4										
Virtex4		6	4										
Virtex5		4											
CoolRunner2	2												
CoolRunnerXpla3	2												
Xc9500	1												
Xc9500XL	1												
Xc9500XV	1												
ProAsicPlus		9											
ProAsic3		7											
ProAsic3E		8											
Fusion		8											
EC		4	4										
ECP		4	4										
ECP2		6	5										
ECP2M		6	5										
SC		6	5										
MACHXO		6	5										
XP		6	5										
XP2		4	4										

## COMP7B

## 7-Bit Identity Comparator, Bus Version

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			4										
Cyclone		5	5										
Cyclone2		5	5										
Cyclone3		5	5										
Stratix		5	5										
Stratix2		4	4										
Stratix3			4										
StratixGX		5	5										
Stratix2GX			3										
Max2		5	5										
Max3000a	1	1											
Max7000b	1	1											
Max7000ae	1	1											
Max7000s	1	1											
Spartan2		4	4										
Spartan2E		4	4										
Spartan3		8	5										
Spartan3A		8	6										
Spartan3ADSP		8	6										
Spartan3AN		8	6										
Spartan3E		8	5										
Spartan3L		8	6										
Virtex		4	4										
Virtex2		8	5										
Virtex2p		8	5										
VirtexE		4	4										
Virtex4		8	5										
Virtex5		4											
CoolRunner2	1												
CoolRunnerXpla3	1												
Xc9500	1												
Xc9500XL	1												
Xc9500XV	1												
ProAsicPlus		11											
ProAsic3		9											
ProAsic3E		10											
Fusion		10											
EC		10	9										
ECP		10	9										
ECP2		8	6										
ECP2M		8	6										
SC		10	9										
MACHXO		6	6										
XP		10	9										
XP2		6	5										

## COMP7S

## 7-Bit Identity Comparator, Single Pin Version

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			4										
Cyclone		5	5										
Cyclone2		5	5										
Cyclone3		5	5										
Stratix		5	5										
Stratix2		4	4										
Stratix3			4										
StratixGX		5	5										
Stratix2GX			3										
Max2		5	5										
Max3000a	1	1											
Max7000b	1	1											
Max7000ae	1	1											
Max7000s	1	1											
Spartan2		4	4										
Spartan2E		4	4										
Spartan3		8	5										
Spartan3A		8	6										
Spartan3ADSP		8	6										
Spartan3AN		8	6										
Spartan3E		8	5										
Spartan3L		8	6										
Virtex		4	4										
Virtex2		8	5										
Virtex2p		8	5										
VirtexE		4	4										
Virtex4		8	5										
Virtex5		4											
CoolRunner2	1												
CoolRunnerXpla3	1												
Xc9500	1												
Xc9500XL	1												
Xc9500XV	1												
ProAsicPlus		11											
ProAsic3		9											
ProAsic3E		10											
Fusion		10											
EC		10	9										
ECP		10	9										
ECP2		8	6										
ECP2M		8	6										
SC		10	9										
MACHXO		6	6										
XP		10	9										
XP2		6	5										

**COMP8B****8-Bit Identity Comparator, Bus Version**

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			4										
Cyclone		5	5										
Cyclone2		5	5										
Cyclone3		5	5										
Stratix		5	5										
Stratix2		5	5										
Stratix3			4										
StratixGX		5	5										
Stratix2GX			3										
Max2		5	5										
Max3000a	1	1											
Max7000b	1	1											
Max7000ae	1	1											
Max7000s	1	1											
Spartan2		4	4										
Spartan2E		4	4										
Spartan3		8	5										
Spartan3A		10	7										
Spartan3ADSP		10	7										
Spartan3AN		10	7										
Spartan3E		8	5										
Spartan3L		10	7										
Virtex		4	4										
Virtex2		8	5										
Virtex2p		8	5										
VirtexE		4	4										
Virtex4		8	5										
Virtex5		6											
CoolRunner2	1												
CoolRunnerXpla3	1												
Xc9500	1												
Xc9500XL	1												
Xc9500XV	1												
ProAsicPlus		13											
ProAsic3		11											
ProAsic3E		11											
Fusion		11											
EC		10	9										
ECP		10	9										
ECP2		10	8										
ECP2M		10	8										
SC		10	9										
MACHXO		6	5										
XP		10	9										
XP2		8	7										

## COMP8S

## 8-Bit Identity Comparator, Single Pin Version

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			4										
Cyclone		5	5										
Cyclone2		5	5										
Cyclone3		5	5										
Stratix		5	5										
Stratix2		5	5										
Stratix3			4										
StratixGX		5	5										
Stratix2GX			3										
Max2		5	5										
Max3000a	1	1											
Max7000b	1	1											
Max7000ae	1	1											
Max7000s	1	1											
Spartan2		4	4										
Spartan2E		4	4										
Spartan3		8	5										
Spartan3A		10	7										
Spartan3ADSP		10	7										
Spartan3AN		10	7										
Spartan3E		8	5										
Spartan3L		10	7										
Virtex		4	4										
Virtex2		8	5										
Virtex2p		8	5										
VirtexE		4	4										
Virtex4		8	5										
Virtex5		6											
CoolRunner2	1												
CoolRunnerXpla3	1												
Xc9500	1												
Xc9500XL	1												
Xc9500XV	1												
ProAsicPlus		13											
ProAsic3		11											
ProAsic3E		11											
Fusion		11											
EC		10	9										
ECP		10	9										
ECP2		10	8										
ECP2M		10	8										
SC		10	9										
MACHXO		6	5										
XP		10	9										
XP2		8	7										

## COMP9B

## 9-Bit Identity Comparator, Bus Version

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			5										
Cyclone		6	6										
Cyclone2		6	6										
Cyclone3		6	6										
Stratix		6	6										
Stratix2		6	6										
Stratix3			5										
StratixGX		6	6										
Stratix2GX			4										
Max2		6	6										
Max3000a	2	2											
Max7000b	2	2											
Max7000ae	2	2											
Max7000s	2	2											
Spartan2		6	5										
Spartan2E		6	5										
Spartan3		10	6										
Spartan3A		12	8										
Spartan3ADSP		12	8										
Spartan3AN		12	8										
Spartan3E		10	6										
Spartan3L		12	8										
Virtex		6	5										
Virtex2		6	5										
Virtex2p		6	5										
VirtexE		6	5										
Virtex4		10	6										
Virtex5		4											
CoolRunner2	1												
CoolRunnerXpla3	1												
Xc9500	1												
Xc9500XL	1												
Xc9500XV	1												
ProAsicPlus		14											
ProAsic3		12											
ProAsic3E		13											
Fusion		13											
EC		12	11										
ECP		12	11										
ECP2		12	10										
ECP2M		12	10										
SC		12	11										
MACHXO		8	7										
XP		12	11										
XP2		10	9										



## COMP9S

## 9-Bit Identity Comparator, Single Pin Version

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			4										
Cyclone		6	6										
Cyclone2		6	6										
Cyclone3		6	6										
Stratix		6	6										
Stratix2		6	6										
Stratix3			4										
StratixGX		6	6										
Stratix2GX			4										
Max2		6	6										
Max3000a	2	2											
Max7000b	2	2											
Max7000ae	2	2											
Max7000s	2	2											
Spartan2		6	5										
Spartan2E		6	5										
Spartan3		10	6										
Spartan3A		12	8										
Spartan3ADSP		12	8										
Spartan3AN		12	8										
Spartan3E		10	6										
Spartan3L		12	8										
Virtex		6	5										
Virtex2		6	5										
Virtex2p		6	5										
VirtexE		6	5										
Virtex4		10	6										
Virtex5		4											
CoolRunner2	1												
CoolRunnerXpla3	1												
Xc9500	1												
Xc9500XL	1												
Xc9500XV	1												
ProAsicPlus		14											
ProAsic3		12											
ProAsic3E		13											
Fusion		13											
EC		12	11										
ECP		12	11										
ECP2		12	10										
ECP2M		12	10										
SC		12	11										
MACHXO		8	7										
XP		12	11										
XP2		10	9										

**COMP10B****10-Bit Identity Comparator, Bus Version**

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			5										
Cyclone		7	7										
Cyclone2		7	7										
Cyclone3		7	7										
Stratix		7	7										
Stratix2		6	6										
Stratix3			5										
StratixGX		7	7										
Stratix2GX			4										
Max2		7	7										
Max3000a	3	3											
Max7000b	3	3											
Max7000ae	3	3											
Max7000s	3	3											
Spartan2		6	5										
Spartan2E		6	5										
Spartan3		12	7										
Spartan3A		14	9										
Spartan3ADSP		14	9										
Spartan3AN		14	9										
Spartan3E		12	7										
Spartan3L		14	9										
Virtex		6	5										
Virtex2		6	5										
Virtex2p		6	5										
VirtexE		6	5										
Virtex4		12	7										
Virtex5		4											
CoolRunner2	2												
CoolRunnerXpla3	2												
Xc9500	1												
Xc9500XL	1												
Xc9500XV	1												
ProAsicPlus		16											
ProAsic3		13											
ProAsic3E		14											
Fusion		14											
EC		12	11										
ECP		12	11										
ECP2		12	10										
ECP2M		12	10										
SC		12	11										
MACHXO		8	7										
XP		12	11										
XP2		10	9										

**COMP10S****10-Bit Identity Comparator, Single Pin Version**

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			5										
Cyclone		7	7										
Cyclone2		7	7										
Cyclone3		7	7										
Stratix		7	7										
Stratix2		6	6										
Stratix3			5										
StratixGX		7	7										
Stratix2GX			4										
Max2		7	7										
Max3000a	3	3											
Max7000b	3	3											
Max7000ae	3	3											
Max7000s	3	3											
Spartan2		6	5										
Spartan2E		6	5										
Spartan3		12	7										
Spartan3A		14	9										
Spartan3ADSP		14	9										
Spartan3AN		14	9										
Spartan3E		12	7										
Spartan3L		14	9										
Virtex		6	5										
Virtex2		6	5										
Virtex2p		6	5										
VirtexE		6	5										
Virtex4		12	7										
Virtex5		6											
CoolRunner2	2												
CoolRunnerXpla3	2												
Xc9500	1												
Xc9500XL	1												
Xc9500XV	1												
ProAsicPlus		16											
ProAsic3		13											
ProAsic3E		14											
Fusion		14											
EC		12	11										
ECP		12	11										
ECP2		12	10										
ECP2M		12	10										
SC		12	11										
MACHXO		8	7										
XP		12	11										
XP2		10	9										

**COMP12B****12-Bit Identity Comparator, Bus Version**

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			6										
Cyclone		8	8										
Cyclone2		8	8										
Cyclone3		8	8										
Stratix		8	8										
Stratix2		7	7										
Stratix3			6										
StratixGX		8	8										
Stratix2GX			5										
Max2		8	8										
Max3000a	5	5											
Max7000b	5	5											
Max7000ae	5	5											
Max7000s	5	5											
Spartan2		6	6										
Spartan2E		6	6										
Spartan3		6	6										
Spartan3A		6	6										
Spartan3ADSP		6	6										
Spartan3AN		6	6										
Spartan3E		6	6										
Spartan3L		6	6										
Virtex		6	6										
Virtex2		6	6										
Virtex2p		6	6										
VirtexE		6	6										
Virtex4		6	6										
Virtex5		8											
CoolRunner2	1												
CoolRunnerXpla3	1												
Xc9500	1												
Xc9500XL	1												
Xc9500XV	1												
ProAsicPlus		19											
ProAsic3		16											
ProAsic3E		17											
Fusion		17											
EC		14	13										
ECP		14	13										
ECP2		12	10										
ECP2M		12	10										
SC		14	13										
MACHXO		8	7										
XP		14	13										
XP2		10	9										

**COMP12S****12-Bit Identity Comparator, Single Pin Version**

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			6										
Cyclone		8	8										
Cyclone2		8	8										
Cyclone3		8	8										
Stratix		8	8										
Stratix2		7	7										
Stratix3			6										
StratixGX		8	8										
Stratix2GX			5										
Max2		8	8										
Max3000a	5	5											
Max7000b	5	5											
Max7000ae	5	5											
Max7000s	5	5											
Spartan2		6	6										
Spartan2E		6	6										
Spartan3		6	6										
Spartan3A		6	6										
Spartan3ADSP		6	6										
Spartan3AN		6	6										
Spartan3E		6	6										
Spartan3L		6	6										
Virtex		6	6										
Virtex2		6	6										
Virtex2p		6	6										
VirtexE		6	6										
Virtex4		6	6										
Virtex5		8											
CoolRunner2	1												
CoolRunnerXpla3	1												
Xc9500	1												
Xc9500XL	1												
Xc9500XV	1												
ProAsicPlus		19											
ProAsic3		16											
ProAsic3E		17											
Fusion		17											
EC		14	13										
ECP		14	13										
ECP2		12	10										
ECP2M		12	10										
SC		14	13										
MACHXO		8	7										
XP		14	13										
XP2		10	9										

**COMP16B****16-Bit Identity Comparator, Bus Version**

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			9										
Cyclone		11	11										
Cyclone2		11	11										
Cyclone3		11	11										
Stratix		11	11										
Stratix2		10	10										
Stratix3			9										
StratixGX		11	11										
Stratix2GX			7										
Max2		11	11										
Max3000a	9	9											
Max7000b	9	9											
Max7000ae	9	9											
Max7000s	9	9											
Spartan2		8	8										
Spartan2E		8	8										
Spartan3		8	8										
Spartan3A		8	8										
Spartan3ADSP		8	8										
Spartan3AN		8	8										
Spartan3E		8	8										
Spartan3L		8	8										
Virtex		8	8										
Virtex2		18	11										
Virtex2p		18	11										
VirtexE		8	8										
Virtex4		8	8										
Virtex5		4											
CoolRunner2	2												
CoolRunnerXpla3	2												
Xc9500	1												
Xc9500XL	1												
Xc9500XV	1												
ProAsicPlus		26											
ProAsic3		21											
ProAsic3E		23											
Fusion		23											
EC		24	16										
ECP		24	16										
ECP2		14	12										
ECP2M		14	12										
SC		24	16										
MACHXO		10	9										
XP		24	16										
XP2		12	11										

**COMP16S****16-Bit Identity Comparator, Single Pin Version**

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			9										
Cyclone		11	11										
Cyclone2		11	11										
Cyclone3		11	11										
Stratix		11	11										
Stratix2		10	10										
Stratix3			9										
StratixGX		11	11										
Stratix2GX			7										
Max2		11	11										
Max3000a	9	9											
Max7000b	9	9											
Max7000ae	9	9											
Max7000s	9	9											
Spartan2		8	8										
Spartan2E		8	8										
Spartan3		8	8										
Spartan3A		8	8										
Spartan3ADSP		8	8										
Spartan3AN		8	8										
Spartan3E		8	8										
Spartan3L		8	8										
Virtex		8	8										
Virtex2		18	11										
Virtex2p		18	11										
VirtexE		8	8										
Virtex4		8	8										
Virtex5		4											
CoolRunner2	2												
CoolRunnerXpla3	2												
Xc9500	1												
Xc9500XL	1												
Xc9500XV	1												
ProAsicPlus		26											
ProAsic3		21											
ProAsic3E		23											
Fusion		23											
EC		24	16										
ECP		24	16										
ECP2		14	12										
ECP2M		14	12										
SC		24	16										
MACHXO		10	9										
XP		24	16										
XP2		12	11										

**COMP32B****32-Bit Identity Comparator, Bus Version**

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			17										
Cyclone		21	21										
Cyclone2		21	21										
Cyclone3		21	21										
Stratix		21	21										
Stratix2		20	20										
Stratix3			17										
StratixGX		21	21										
Stratix2GX			13										
Max2		21	21										
Max3000a	30	30											
Max7000b	30	30											
Max7000ae	30	30											
Max7000s	30	30											
Spartan2		16	16										
Spartan2E		16	16										
Spartan3		16	16										
Spartan3A		16	16										
Spartan3ADSP		16	16										
Spartan3AN		16	16										
Spartan3E		16	16										
Spartan3L		16	16										
Virtex		16	16										
Virtex2		34	21										
Virtex2p		34	21										
VirtexE		16	16										
Virtex4		16	16										
Virtex5		6											
CoolRunner2	4												
CoolRunnerXpla3	4												
Xc9500	2												
Xc9500XL	2												
Xc9500XV	2												
ProAsicPlus		53											
ProAsic3		42											
ProAsic3E		47											
Fusion		47											
EC		48	32										
ECP		48	32										
ECP2		22	20										
ECP2M		22	20										
SC		48	32										
MACHXO		18	17										
XP		48	32										
XP2		20	19										



## COMPM2B

## 2-Bit Magnitude Comparator, Bus Version

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			2										
Cyclone		2	2										
Cyclone2		2	2										
Cyclone3		2	2										
Stratix		2	2										
Stratix2		2	2										
Stratix3			2										
StratixGX		2	2										
Stratix2GX			2										
Max2		2	2										
Max3000a	2	2											
Max7000b	2	2											
Max7000ae	2	2											
Max7000s	2	2											
Spartan2		2	2										
Spartan2E		2	2										
Spartan3		2	2										
Spartan3A		2	2										
Spartan3ADSP		2	2										
Spartan3AN		2	2										
Spartan3E		2	2										
Spartan3L		2	2										
Virtex		2	2										
Virtex2		2	2										
Virtex2p		2	2										
VirtexE		2	2										
Virtex4		2	2										
Virtex5		2											
CoolRunner2	2												
CoolRunnerXpla3	2												
Xc9500	2												
Xc9500XL	2												
Xc9500XV	2												
ProAsicPlus		8											
ProAsic3		8											
ProAsic3E		8											
Fusion		8											
EC		8	6										
ECP		8	6										
ECP2		2	2										
ECP2M		2	2										
SC		8	6										
MACHXO		2	2										
XP		8	6										
XP2		2	2										

**COMPM2S****2-Bit Magnitude Comparator, Single Pin Version**

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			2										
Cyclone		2	2										
Cyclone2		2	2										
Cyclone3		2	2										
Stratix		2	2										
Stratix2		2	2										
Stratix3			2										
StratixGX		2	2										
Stratix2GX			2										
Max2		2	2										
Max3000a	2	2											
Max7000b	2	2											
Max7000ae	2	2											
Max7000s	2	2											
Spartan2		2	2										
Spartan2E		2	2										
Spartan3		2	2										
Spartan3A		2	2										
Spartan3ADSP		2	2										
Spartan3AN		2	2										
Spartan3E		2	2										
Spartan3L		2	2										
Virtex		2	2										
Virtex2		2	2										
Virtex2p		2	2										
VirtexE		2	2										
Virtex4		2	2										
Virtex5		2											
CoolRunner2	2												
CoolRunnerXpla3	2												
Xc9500	2												
Xc9500XL	2												
Xc9500XV	2												
ProAsicPlus		8											
ProAsic3		8											
ProAsic3E		8											
Fusion		8											
EC		8	6										
ECP		8	6										
ECP2		2	2										
ECP2M		2	2										
SC		8	6										
MACHXO		2	2										
XP		8	6										
XP2		2	2										

## COMPM3B

## 3-Bit Magnitude Comparator, Bus Version

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			2										
Cyclone		6	6										
Cyclone2		6	6										
Cyclone3		6	6										
Stratix		6	6										
Stratix2		4	4										
Stratix3			2										
StratixGX		6	6										
Stratix2GX			2										
Max2		6	6										
Max3000a	4	4											
Max7000b	4	4											
Max7000ae	4	4											
Max7000s	4	4											
Spartan2		8	6										
Spartan2E		8	6										
Spartan3		8	6										
Spartan3A		4	4										
Spartan3ADSP		4	4										
Spartan3AN		4	4										
Spartan3E		4	4										
Spartan3L		4	4										
Virtex		8	6										
Virtex2		8	6										
Virtex2p		8	6										
VirtexE		8	6										
Virtex4		8	6										
Virtex5		4											
CoolRunner2	2												
CoolRunnerXpla3	2												
Xc9500	2												
Xc9500XL	2												
Xc9500XV	2												
ProAsicPlus		14											
ProAsic3		14											
ProAsic3E		14											
Fusion		14											
EC		8	6										
ECP		8	6										
ECP2		4	4										
ECP2M		4	4										
SC		8	6										
MACHXO		4	4										
XP		8	6										
XP2													

**COMPM3S****3-Bit Magnitude Comparator, Single Pin Version**

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			2										
Cyclone		6	6										
Cyclone2		6	6										
Cyclone3		6	6										
Stratix		6	6										
Stratix2		4	4										
Stratix3			2										
StratixGX		6	6										
Stratix2GX			2										
Max2		6	6										
Max3000a	4	4											
Max7000b	4	4											
Max7000ae	4	4											
Max7000s	4	4											
Spartan2		8	6										
Spartan2E		8	6										
Spartan3		8	6										
Spartan3A		4	4										
Spartan3ADSP		4	4										
Spartan3AN		4	4										
Spartan3E		4	4										
Spartan3L		4	4										
Virtex		8	6										
Virtex2		8	6										
Virtex2p		8	6										
VirtexE		8	6										
Virtex4		8	6										
Virtex5		4											
CoolRunner2	2												
CoolRunnerXpla3	2												
Xc9500	2												
Xc9500XL	2												
Xc9500XV	2												
ProAsicPlus		14											
ProAsic3		14											
ProAsic3E		14											
Fusion		14											
EC		8	6										
ECP		8	6										
ECP2		4	4										
ECP2M		4	4										
SC		8	6										
MACHXO		4	4										
XP		8	6										
XP2		4	4										

## COMPM4B

## 4-Bit Magnitude Comparator, Bus Version

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			4										
Cyclone		8	8										
Cyclone2		8	8										
Cyclone3		8	8										
Stratix		8	8										
Stratix2		4	4										
Stratix3			4										
StratixGX		8	8										
Stratix2GX			4										
Max2		8	8										
Max3000a	6	6											
Max7000b	6	6											
Max7000ae	6	6											
Max7000s	6	6											
Spartan2		8	8										
Spartan2E		8	8										
Spartan3		8	8										
Spartan3A		8	8										
Spartan3ADSP		8	8										
Spartan3AN		8	8										
Spartan3E		8	8										
Spartan3L		8	8										
Virtex		8	8										
Virtex2		8	8										
Virtex2p		8	8										
VirtexE		8	8										
Virtex4		8	8										
Virtex5		4											
CoolRunner2	2												
CoolRunnerXpla3	2												
Xc9500	2												
Xc9500XL	2												
Xc9500XV	2												
ProAsicPlus		22											
ProAsic3		20											
ProAsic3E		20											
Fusion		20											
EC		12	10										
ECP		12	10										
ECP2		16	14										
ECP2M		16	14										
SC		12	10										
MACHXO		8	8										
XP		12	10										
XP2		14	13										

**COMPM4S****4-Bit Magnitude Comparator, Single Pin Version**

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			4										
Cyclone		8	8										
Cyclone2		8	8										
Cyclone3		8	8										
Stratix		8	8										
Stratix2		4	4										
Stratix3			4										
StratixGX		8	8										
Stratix2GX			4										
Max2		8	8										
Max3000a	6	6											
Max7000b	6	6											
Max7000ae	6	6											
Max7000s	6	6											
Spartan2		8	8										
Spartan2E		8	8										
Spartan3		8	8										
Spartan3A		8	8										
Spartan3ADSP		8	8										
Spartan3AN		8	8										
Spartan3E		8	8										
Spartan3L		8	8										
Virtex		8	8										
Virtex2		8	8										
Virtex2p		8	8										
VirtexE		8	8										
Virtex4		8	8										
Virtex5		4											
CoolRunner2	2												
CoolRunnerXpla3	2												
Xc9500	2												
Xc9500XL	2												
Xc9500XV	2												
ProAsicPlus		22											
ProAsic3		20											
ProAsic3E		20											
Fusion		20											
EC		12	10										
ECP		12	10										
ECP2		16	14										
ECP2M		16	14										
SC		12	10										
MACHXO		8	8										
XP		12	10										
XP2		14	13										

## COMP5B

## 5-Bit Magnitude Comparator, Bus Version

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arria7			4										
Cyclone		10	10										
Cyclone2		10	10										
Cyclone3		10	10										
Stratix		10	10										
Stratix2		6	6										
Stratix3			4										
StratixGX		10	10										
Stratix2GX			4										
Max2		10	10										
Max3000a	2	2											
Max7000b	2	2											
Max7000ae	2	2											
Max7000s	2	2											
Spartan2		12	10										
Spartan2E		12	10										
Spartan3		12	10										
Spartan3A		12	10										
Spartan3ADSP		12	10										
Spartan3AN		12	10										
Spartan3E		12	10										
Spartan3L		12	10										
Virtex		12	10										
Virtex2		12	10										
Virtex2p		12	10										
VirtexE		12	10										
Virtex4		12	10										
Virtex5		8											
CoolRunner2	4												
CoolRunnerXpla3	4												
Xc9500	3												
Xc9500XL	3												
Xc9500XV	3												
ProAsicPlus		22											
ProAsic3		22											
ProAsic3E		22											
Fusion		22											
EC		12	10										
ECP		12	10										
ECP2		20	18										
ECP2M		20	18										
SC		12	10										
MACHXO		12	12										
XP		12	10										
XP2		18	17										

**COMPM5S****5-Bit Magnitude Comparator, Single Pin Version**

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			4										
Cyclone		10	10										
Cyclone2		10	10										
Cyclone3		10	10										
Stratix		10	10										
Stratix2		6	6										
Stratix3			4										
StratixGX		10	10										
Stratix2GX			4										
Max2		10	10										
Max3000a	2	2											
Max7000b	2	2											
Max7000ae	2	2											
Max7000s	2	2											
Spartan2		12	10										
Spartan2E		12	10										
Spartan3		12	10										
Spartan3A		12	10										
Spartan3ADSP		12	10										
Spartan3AN		12	10										
Spartan3E		12	10										
Spartan3L		12	10										
Virtex		12	10										
Virtex2		12	10										
Virtex2p		12	10										
VirtexE		12	10										
Virtex4		12	10										
Virtex5			8										
CoolRunner2	4												
CoolRunnerXpla3	4												
Xc9500	3												
Xc9500XL	3												
Xc9500XV	3												
ProAsicPlus		22											
ProAsic3		22											
ProAsic3E		22											
Fusion		22											
EC		12	10										
ECP		12	10										
ECP2		20	18										
ECP2M		20	18										
SC		12	10										
MACHXO		12	12										
XP		12	10										
XP2		18	17										



**COMPM6B****6-Bit Magnitude Comparator, Bus Version**

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			6										
Cyclone		12	12										
Cyclone2		12	12										
Cyclone3		12	12										
Stratix		12	12										
Stratix2		6	6										
Stratix3			6										
StratixGX		12	12										
Stratix2GX			6										
Max2		12	12										
Max3000a	4	4											
Max7000b	4	4											
Max7000ae	4	4											
Max7000s	4	4											
Spartan2		12	12										
Spartan2E		12	12										
Spartan3		12	12										
Spartan3A		12	12										
Spartan3ADSP		12	12										
Spartan3AN		12	12										
Spartan3E		12	12										
Spartan3L		12	12										
Virtex		12	12										
Virtex2		12	12										
Virtex2p		12	12										
VirtexE		12	12										
Virtex4		12	12										
Virtex5			8										
CoolRunner2	6												
CoolRunnerXpla3	6												
Xc9500	3												
Xc9500XL	3												
Xc9500XV	3												
ProAsicPlus		38											
ProAsic3		34											
ProAsic3E		34											
Fusion		34											
EC		16	14										
ECP		16	14										
ECP2		20	18										
ECP2M		20	18										
SC		16	14										
MACHXO		12	12										
XP		16	14										
XP2		18	17										

## COMPM6S

## 6-Bit Magnitude Comparator, Single Pin Version

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			6										
Cyclone		12	12										
Cyclone2		12	12										
Cyclone3		12	12										
Stratix		12	12										
Stratix2		6	6										
Stratix3			6										
StratixGX		12	12										
Stratix2GX			6										
Max2		12	12										
Max3000a	4	4											
Max7000b	4	4											
Max7000ae	4	4											
Max7000s	4	4											
Spartan2		12	12										
Spartan2E		12	12										
Spartan3		12	12										
Spartan3A		12	12										
Spartan3ADSP		12	12										
Spartan3AN		12	12										
Spartan3E		12	12										
Spartan3L		12	12										
Virtex		12	12										
Virtex2		12	12										
Virtex2p		12	12										
VirtexE		12	12										
Virtex4		12	12										
Virtex5			8										
CoolRunner2	6												
CoolRunnerXpla3	6												
Xc9500	3												
Xc9500XL	3												
Xc9500XV	3												
ProAsicPlus		38											
ProAsic3		34											
ProAsic3E		34											
Fusion		34											
EC		16	14										
ECP		16	14										
ECP2		20	18										
ECP2M		20	18										
SC		16	14										
MACHXO		12	12										
XP		16	14										
XP2		18	17										

## COMPM7B

## 7-Bit Magnitude Comparator, Bus Version

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			8										
Cyclone		14	14										
Cyclone2		14	14										
Cyclone3		14	14										
Stratix		14	14										
Stratix2		8	8										
Stratix3			8										
StratixGX		14	14										
Stratix2GX			6										
Max2		14	14										
Max3000a	6	6											
Max7000b	6	6											
Max7000ae	6	6											
Max7000s	6	6											
Spartan2		16	14										
Spartan2E		16	14										
Spartan3		16	14										
Spartan3A		16	14										
Spartan3ADSP		16	14										
Spartan3AN		16	14										
Spartan3E		16	14										
Spartan3L		16	14										
Virtex		16	14										
Virtex2		16	14										
Virtex2p		16	14										
VirtexE		16	14										
Virtex4		16	14										
Virtex5		8											
CoolRunner2	6												
CoolRunnerXpla3	6												
Xc9500	5												
Xc9500XL	5												
Xc9500XV	5												
ProAsicPlus		46											
ProAsic3		44											
ProAsic3E		44											
Fusion		44											
EC		16	14										
ECP		16	14										
ECP2		24	22										
ECP2M		24	22										
SC		16	14										
MACHXO		16	16										
XP		16	14										
XP2		22	21										

## COMPM7S

## 7-Bit Magnitude Comparator, Single Pin Version

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			8										
Cyclone		14	14										
Cyclone2		14	14										
Cyclone3		14	14										
Stratix		14	14										
Stratix2		8	8										
Stratix3			8										
StratixGX		14	14										
Stratix2GX			6										
Max2		14	14										
Max3000a	6	6											
Max7000b	6	6											
Max7000ae	6	6											
Max7000s	6	6											
Spartan2		16	14										
Spartan2E		16	14										
Spartan3		16	14										
Spartan3A		16	14										
Spartan3ADSP		16	14										
Spartan3AN		16	14										
Spartan3E		16	14										
Spartan3L		16	14										
Virtex		16	14										
Virtex2		16	14										
Virtex2p		16	14										
VirtexE		16	14										
Virtex4		16	14										
Virtex5		8											
CoolRunner2	6												
CoolRunnerXpla3	6												
Xc9500	5												
Xc9500XL	5												
Xc9500XV	5												
ProAsicPlus		46											
ProAsic3		44											
ProAsic3E		44											
Fusion		44											
EC		16	14										
ECP		16	14										
ECP2		24	22										
ECP2M		24	22										
SC		16	14										
MACHXO		16	16										
XP		16	14										
XP2		22	21										

## COMPM8B

## 8-Bit Magnitude Comparator, Bus Version

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			18										
Cyclone		16	16										
Cyclone2		16	16										
Cyclone3		16	16										
Stratix		16	16										
Stratix2		18	18										
Stratix3			18										
StratixGX		16	16										
Stratix2GX			18										
Max2		16	16										
Max3000a	6	6											
Max7000b	6	6											
Max7000ae	6	6											
Max7000s	6	6											
Spartan2		16	16										
Spartan2E		16	16										
Spartan3		16	16										
Spartan3A		16	16										
Spartan3ADSP		16	16										
Spartan3AN		16	16										
Spartan3E		16	16										
Spartan3L		16	16										
Virtex		16	16										
Virtex2		16	16										
Virtex2p		16	16										
VirtexE		16	16										
Virtex4		16	16										
Virtex5			8										
CoolRunner2	7												
CoolRunnerXpla3	7												
Xc9500	5												
Xc9500XL	5												
Xc9500XV	5												
ProAsicPlus		46											
ProAsic3		46											
ProAsic3E		46											
Fusion		46											
EC		20	18										
ECP		20	18										
ECP2		24	22										
ECP2M		24	22										
SC		20	18										
MACHXO		16	16										
XP		20	18										
XP2		22	21										

**COMPM8S****8-Bit Magnitude Comparator, Single Pin Version**

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			18										
Cyclone		16	16										
Cyclone2		16	16										
Cyclone3		16	16										
Stratix		16	16										
Stratix2		18	18										
Stratix3			18										
StratixGX		16	16										
Stratix2GX			18										
Max2		16	16										
Max3000a	6	6											
Max7000b	6	6											
Max7000ae	6	6											
Max7000s	6	6											
Spartan2		16	16										
Spartan2E		16	16										
Spartan3		16	16										
Spartan3A		16	16										
Spartan3ADSP		16	16										
Spartan3AN		16	16										
Spartan3E		16	16										
Spartan3L		16	16										
Virtex		16	16										
Virtex2		16	16										
Virtex2p		16	16										
VirtexE		16	16										
Virtex4		16	16										
Virtex5		10											
CoolRunner2	7												
CoolRunnerXpla3	7												
Xc9500	5												
Xc9500XL	5												
Xc9500XV	5												
ProAsicPlus		46											
ProAsic3		46											
ProAsic3E		46											
Fusion		46											
EC		20	18										
ECP		20	18										
ECP2		24	22										
ECP2M		24	22										
SC		20	18										
MACHXO		16	16										
XP		20	18										
XP2		22	21										

## COMPM9B

## 9-Bit Magnitude Comparator, Bus Version

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			20										
Cyclone		18	18										
Cyclone2		18	18										
Cyclone3		18	18										
Stratix		18	18										
Stratix2		20	20										
Stratix3			20										
StratixGX		18	18										
Stratix2GX			20										
Max2		18	18										
Max3000a	7	7											
Max7000b	7	7											
Max7000ae	7	7											
Max7000s	7	7											
Spartan2		20	18										
Spartan2E		20	18										
Spartan3		20	18										
Spartan3A		20	18										
Spartan3ADSP		20	18										
Spartan3AN		20	18										
Spartan3E		20	18										
Spartan3L		20	18										
Virtex		20	18										
Virtex2		20	18										
Virtex2p		20	18										
VirtexE		20	18										
Virtex4		20	18										
Virtex5		10											
CoolRunner2	8												
CoolRunnerXpla3	8												
Xc9500	7												
Xc9500XL	7												
Xc9500XV	7												
ProAsicPlus		58											
ProAsic3		54											
ProAsic3E		54											
Fusion		54											
EC		20	18										
ECP		20	18										
ECP2		28	26										
ECP2M		28	26										
SC		20	18										
MACHXO		20	20										
XP		20	18										
XP2		26	25										

**COMPM9S****9-Bit Magnitude Comparator, Single Pin Version**

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			20										
Cyclone		18	18										
Cyclone2		18	18										
Cyclone3		18	18										
Stratix		18	18										
Stratix2		20	20										
Stratix3			20										
StratixGX		18	18										
Stratix2GX			20										
Max2		18	18										
Max3000a	7	7											
Max7000b	7	7											
Max7000ae	7	7											
Max7000s	7	7											
Spartan2		20	18										
Spartan2E		20	18										
Spartan3		20	18										
Spartan3A		20	18										
Spartan3ADSP		20	18										
Spartan3AN		20	18										
Spartan3E		20	18										
Spartan3L		20	18										
Virtex		20	18										
Virtex2		20	18										
Virtex2p		20	18										
VirtexE		20	18										
Virtex4		20	18										
Virtex5		10											
CoolRunner2	8												
CoolRunnerXpla3	8												
Xc9500	7												
Xc9500XL	7												
Xc9500XV	7												
ProAsicPlus		58											
ProAsic3		54											
ProAsic3E		54											
Fusion		54											
EC		20	18										
ECP		20	18										
ECP2		28	26										
ECP2M		28	26										
SC		20	18										
MACHXO		20	20										
XP		20	18										
XP2		26	25										



**COMPM10B****10-Bit Magnitude Comparator, Bus Version**

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			22										
Cyclone		21	21										
Cyclone2		20	20										
Cyclone3		20	20										
Stratix		21	21										
Stratix2		23	23										
Stratix3			22										
StratixGX		21	21										
Stratix2GX			22										
Max2		21	21										
Max3000a	14	14											
Max7000b	14	14											
Max7000ae	14	14											
Max7000s	14	14											
Spartan2		22	21										
Spartan2E		22	21										
Spartan3		22	21										
Spartan3A		20	20										
Spartan3ADSP		20	20										
Spartan3AN		20	20										
Spartan3E		20	20										
Spartan3L		20	20										
Virtex		22	21										
Virtex2		22	21										
Virtex2p		22	21										
VirtexE		22	21										
Virtex4		22	21										
Virtex5		8											
CoolRunner2	9												
CoolRunnerXpla3	9												
Xc9500	8												
Xc9500XL	8												
Xc9500XV	8												
ProAsicPlus		63											
ProAsic3		60											
ProAsic3E		60											
Fusion		60											
EC		24	22										
ECP		24	22										
ECP2		28	26										
ECP2M		28	26										
SC		24	22										
MACHXO		20	20										
XP		24	22										
XP2		26	25										

**COMPM10S****10-Bit Magnitude Comparator, Single Pin Version**

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			22										
Cyclone		21	21										
Cyclone2		20	20										
Cyclone3		20	20										
Stratix		21	21										
Stratix2		23	23										
Stratix3			22										
StratixGX		21	21										
Stratix2GX			22										
Max2		21	21										
Max3000a	14	14											
Max7000b	14	14											
Max7000ae	14	14											
Max7000s	14	14											
Spartan2		22	21										
Spartan2E		22	21										
Spartan3		22	21										
Spartan3A		20	20										
Spartan3ADSP		20	20										
Spartan3AN		20	20										
Spartan3E		20	20										
Spartan3L		20	20										
Virtex		22	21										
Virtex2		22	21										
Virtex2p		22	21										
VirtexE		22	21										
Virtex4		22	21										
Virtex5		12											
CoolRunner2	9												
CoolRunnerXpla3	9												
Xc9500	8												
Xc9500XL	8												
Xc9500XV	8												
ProAsicPlus		63											
ProAsic3		60											
ProAsic3E		60											
Fusion		60											
EC		24	22										
ECP		24	22										
ECP2		28	26										
ECP2M		28	26										
SC		24	22										
MACHXO		20	20										
XP		24	22										
XP2		26	25										

**COMPM12B****12-Bit Magnitude Comparator, Bus Version**

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			14										
Cyclone		25	25										
Cyclone2		25	25										
Cyclone3		25	25										
Stratix		25	25										
Stratix2		27	27										
Stratix3			14										
StratixGX		25	25										
Stratix2GX			12										
Max2		25	25										
Max3000a	18	18											
Max7000b	18	18											
Max7000ae	18	18											
Max7000s	18	18											
Spartan2		26	25										
Spartan2E		26	25										
Spartan3		26	25										
Spartan3A		26	25										
Spartan3ADSP		26	25										
Spartan3AN		26	25										
Spartan3E		26	25										
Spartan3L		26	25										
Virtex		26	25										
Virtex2		26	25										
Virtex2p		26	25										
VirtexE		26	25										
Virtex4		26	25										
Virtex5		16											
CoolRunner2	11												
CoolRunnerXpla3	11												
Xc9500	10												
Xc9500XL	10												
Xc9500XV	10												
ProAsicPlus		87											
ProAsic3		83											
ProAsic3E		83											
Fusion		83											
EC		28	26										
ECP		28	26										
ECP2		34	31										
ECP2M		34	31										
SC		28	26										
MACHXO		26	25										
XP		28	26										
XP2		32	30										

**COMPM12S****12-Bit Magnitude Comparator, Single Pin Version**

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			14										
Cyclone		25	25										
Cyclone2		24	24										
Cyclone3		24	24										
Stratix		25	25										
Stratix2		27	27										
Stratix3			14										
StratixGX		25	25										
Stratix2GX			12										
Max2		25	25										
Max3000a	18	18											
Max7000b	18	18											
Max7000ae	18	18											
Max7000s	18	18											
Spartan2		26	25										
Spartan2E		26	25										
Spartan3		26	25										
Spartan3A		24	24										
Spartan3ADSP		24	24										
Spartan3AN		24	24										
Spartan3E		24	24										
Spartan3L		24	24										
Virtex		26	25										
Virtex2		26	25										
Virtex2p		26	25										
VirtexE		26	25										
Virtex4		26	25										
Virtex5		14											
CoolRunner2	11												
CoolRunnerXpla3	11												
Xc9500	10												
Xc9500XL	10												
Xc9500XV	10												
ProAsicPlus		87											
ProAsic3		82											
ProAsic3E		82											
Fusion		82											
EC		28	26										
ECP		28	26										
ECP2		32	30										
ECP2M		32	30										
SC		28	26										
MACHXO		24	24										
XP		28	26										
XP2		30	29										

**COMPM16B****16-Bit Magnitude Comparator, Bus Version**

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			20										
Cyclone		33	33										
Cyclone2		33	33										
Cyclone3		33	33										
Stratix		33	33										
Stratix2		35	35										
Stratix3			20										
StratixGX		33	33										
Stratix2GX			16										
Max2		33	33										
Max3000a	32	32											
Max7000b	32	32											
Max7000ae	32	32											
Max7000s	32	32											
Spartan2		34	33										
Spartan2E		34	33										
Spartan3		34	33										
Spartan3A		34	33										
Spartan3ADSP		34	33										
Spartan3AN		34	33										
Spartan3E		34	33										
Spartan3L		34	33										
Virtex		34	33										
Virtex2		34	33										
Virtex2p		34	33										
VirtexE		34	33										
Virtex4		34	33										
Virtex5		24											
CoolRunner2	17												
CoolRunnerXpla3	107												
Xc9500	25												
Xc9500XL	15												
Xc9500XV	15												
ProAsicPlus		127											
ProAsic3		121											
ProAsic3E		121											
Fusion		121											
EC		36	34										
ECP		36	34										
ECP2		42	39										
ECP2M		42	39										
SC		36	34										
MACHXO		34	33										
XP		36	34										
XP2		40	38										

**COMPM16S****16-Bit Magnitude Comparator, Single Pin Version**

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			20										
Cyclone		33	33										
Cyclone2		33	33										
Cyclone3		33	33										
Stratix		33	33										
Stratix2		35	35										
Stratix3			20										
StratixGX		33	33										
Stratix2GX			16										
Max2		33	33										
Max3000a	32	32											
Max7000b	32	32											
Max7000ae	32	32											
Max7000s	32	32											
Spartan2		34	33										
Spartan2E		34	33										
Spartan3		34	33										
Spartan3A		34	33										
Spartan3ADSP		34	33										
Spartan3AN		34	33										
Spartan3E		34	33										
Spartan3L		34	33										
Virtex		34	33										
Virtex2		34	33										
Virtex2p		34	33										
VirtexE		34	33										
Virtex4		34	33										
Virtex5		24											
CoolRunner2	17												
CoolRunnerXpla3	107												
Xc9500	25												
Xc9500XL	15												
Xc9500XV	15												
ProAsicPlus		127											
ProAsic3		121											
ProAsic3E		121											
Fusion		121											
EC		36	34										
ECP		36	34										
ECP2		42	39										
ECP2M		42	39										
SC		36	34										
MACHXO		34	33										
XP		36	34										
XP2		40	38										

**COMPM32B****32-Bit Magnitude Comparator, Bus Version**

Device Family	Macrocells	Logic Cells/Elements	4-Input LUT	Registers	Block RAM (16K-Bit)	Block RAM (4K-Bit)	Block RAM (8Kx18)	Block RAM (256x9)	Block Multipliers	Total PLLs	Total DLLs	D/GCLK	DCMs
Arriagx			42										
Cyclone		65	65										
Cyclone2		65	65										
Cyclone3		65	65										
Stratix		65	65										
Stratix2		45	45										
Stratix3			42										
StratixGX		65	65										
Stratix2GX			32										
Max2		65	65										
Max3000a	80	80											
Max7000b	80	80											
Max7000ae	80	80											
Max7000s	80	80											
Spartan2		66	65										
Spartan2E		66	65										
Spartan3		66	65										
Spartan3A		66	65										
Spartan3ADSP		66	65										
Spartan3AN		66	65										
Spartan3E		66	65										
Spartan3L		66	65										
Virtex		66	65										
Virtex2		66	65										
Virtex2p		66	65										
VirtexE		66	65										
Virtex4		66	65										
Virtex5		48											
CoolRunner2	57												
CoolRunnerXpla3	55												
Xc9500	55												
Xc9500XL	51												
Xc9500XV	51												
ProAsicPlus		277											
ProAsic3		267											
ProAsic3E		267											
Fusion		267											
EC		68	66										
ECP		68	66										
ECP2		120	94										
ECP2M		120	94										
SC		68	66										
MACHXO		82	73										
XP		68	66										
XP2		88	78										

## Tools Utilized

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The following vendor device tools were used to determine the resource usage statistics:

### **Actel**

Actel Designer Software Version 6.2

### **Altera**

Quartus II 5.0

### **Lattice**

ispLEVER 5.0

### **Xilinx**

Xilinx ISE 6.3

For Virtex4, Spartan3, Spartan3E the Xilinx ISE 7.1 was used.



## Revision History

Date	Version No.	Revision
6-Dec-2004	1.0	Service pack 2 release
12-Apr-2005	1.01	Added Virtex4 and Stratix2 resource usage
6-Jun-2005	1.02	Added MAX2 resource usage
15-Sep-2005	1.03	Added EC, ECP, Spartan3E, Cyclone2 and StratixGX resource usage
13-Oct-2005	1.04	Added ProAsic3 and ProAsic3E resource usage
20-Apr-2006	1.06	Tools Utilized section added
16-Jun-2006	1.07	XP resource usage added
28-Jul-2006	1.08	MACHXO resource usage added
10-Apr-2007	1.09	Cyclone3, ECP2, ECP2M, Spartan3A, Spartan3E, Spartan3L and Virtex5 resource usage added
17-Jul-2008	1.10	Altium Designer Summer 08 SP1
19-Dec-2008	1.11	Altium Designer Winter 09 SP1

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