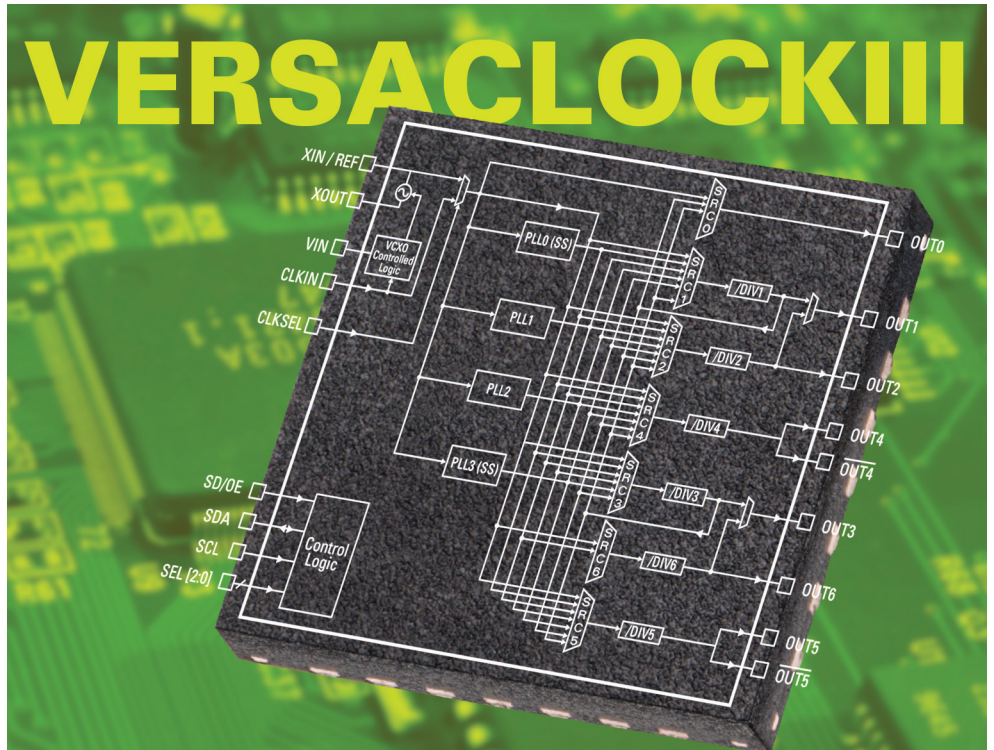# VersaClock® III
Programmable Clocks

POWER MANAGEMENT | ANALOG & RF | INTERFACE & CONNECTIVITY | **CLOCKS & TIMING** | MEMORY & LOGIC | TOUCH & USER INTERFACE | VIDEO & DISPLAY | AUDIO

KEY FEATURES

- 3.3V device with up to four independently controlled VDDO (1.8V - 3.3V)
- Two of four integrated PLLs support spread spectrum generation for EMI reduction
- Integrated VCXO
- Output frequency range: 4.9 kHz to 500 MHz
  – 1.8 - 3.3 V LVTTL/ LVCMOS
  – LVPECL, LVDS and HCSL
- Programmable loop bandwidth
- Programmable slew rate control,
- Redundant clock inputs with glitchless auto and manual switchover options
- Small 4x4mm and 5x5mm QFN and TSSOP packages

VERSACLOCK III SOFTWARE OPTIMIZES CONFIGURATIONS

- Automatic analysis and adjustment of spread spectrum, loop bandwidths and outputs
- Provides clock to pin locking and multi-register configuration
- Bit-level manipulation
- Direct software interface with VersaClock III evaluation board
- Free download from www.idt.com/go/versaclock3

IDT VersaClock products save cost, reduce board space and greatly increase versatility in consumer, data communications, telecommunications and networking applications.

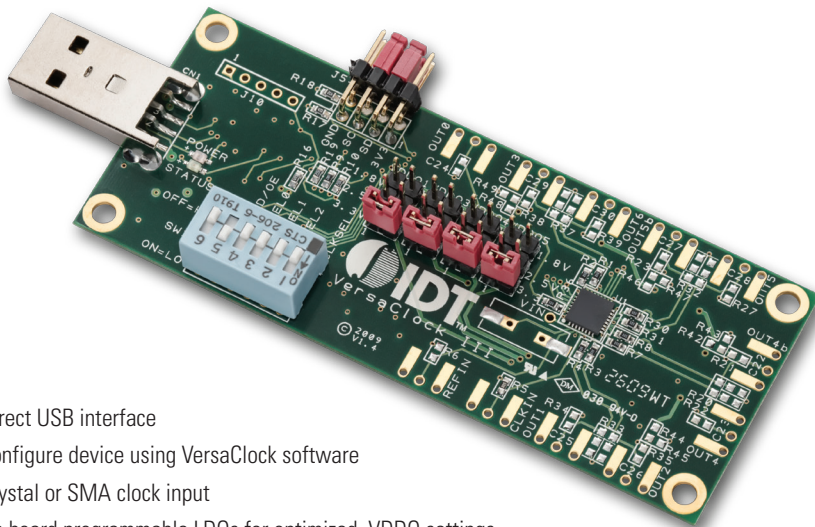### Multi purpose clock provides many solutions

VersaClock® products allow designers to save board space and cost by replacing crystals, oscillators and buffers with a single timing device. Exceptional versatility and configurability allow for maximum freedom in the design process.

There are four internal PLLs, each individually programmable, allowing for up to seven unique frequencies. These frequencies are generated from a single reference clock, which can come from one of two redundant clock inputs. A glitchless automatic or manual switchover function allows the redundant clock to be selected during normal operation.

VersaClock devices are highly configurable and can be programmed through the use of the I²C interface. The programming interface enables the device to be programmed when it is in normal operation. An internal EEPROM allows the user to save and restore the configuration of the device without having to reprogram it on power-up.

VersaClock products from IDT provide an almost universal solution for a variety of high performance clock applications.

VersaClock® III Programmable Clocks

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VERSACLOCK III EVALUATION BOARD

- Direct USB interface
- Configure device using VersaClock software
- Crystal or SMA clock input
- On board programmable LDOs for optimized VDDO settings
- Matched differential output traces
- Multiple daughtercards with sockets available to program additional devices

FEATURES

- Four internal PLLs
- Optional integrated VCXO
- Internal non-volatile EEPROM
- Each PLL has a 7-bit reference divider and a 12-bit feedback divider
- Fast (400 kHz) mode I²C serial interface for device configuration
- 8-bit output divider clocks
- Output frequency range: 4.9 kHz to 500 MHz
- Programmable loop bandwidth settings
- Input clock frequency range: 1 MHz to 200 MHz
- Programmable output inversion to reduce jitter
- Reference crystal input with programmable linear load capacitance
  - Crystal frequency range: 8 to 50 MHz
- I / O Standards:
  - Outputs – 1.8/2.5/3.3 V LVTTL / LVCMOS (device dependent)
  - Outputs – LVPECL, LVDS and HCSL
  - Inputs – LVTTL / LVCMOS
- Two PLLs support spread spectrum generation
- Redundant clock inputs with glitch-less auto switchover
- Fractional divide capability on one PLL
- -40 to +85˚C industrial temperature operation

Discover what IDT know-how can do for you:
www.IDT.com/go/versaclock3

VersaClock III Parts

XO	Package	Output No.	Output Type	VDDO
5V49EE901	TSSOP28, QFN32 (5x5mm)	9	LVTTL, LVPECL, LVDS, HCSL	No
5V49EE902	QFN32 (5x5mm)	9	LVTTL, LVPECL, LVDS, HCSL	Yes - 4
5V49EE903	TSSOP28, QFN32 (5x5mm)	9	LVTTL	No
5V49EE904	QFN32 (5x5mm)	9	LVTTL	Yes - 4
5V49EE701	QFN28 (4x4mm)	7	LVTTL, LVPECL, LVDS, HCSL	No
5V49EE702	QFN28 (4x4mm)	7	LVTTL, LVPECL, LVDS, HCSL	Yes - 3
5V49EE703	QFN28 (4x4mm)	7	LVTTL	No
5V49EE704	QFN28 (4x4mm)	7	LVTTL	Yes -3
5V49EE501	QFN24 (4x4mm)	5	LVTTL, LVPECL, LVDS, HCSL	No
5V49EE502	QFN24 (4x4mm)	5	LVTTL, LVPECL, LVDS, HCSL	Yes -2
5V49EE503	QFN24 (4x4mm)	5	LVTTL	No
5V49EE504	QFN24 (4x4mm)	5	LVTTL	Yes - 2
VCXO	**Package**	**Output No**	**Output Type**	**VDDO**
5V19EE901	TSSOP28, QFN32 (5x5mm)	9	LVTTL, LVPECL, LVDS, HCSL	No
5V19EE902	QFN32 (5x5mm)	9	LVTTL, LVPECL, LVDS, HCSL	Yes - 4
5V19EE903	TSSOP28, QFN32 (5x5mm)	9	LVTTL	No
5V19EE904	QFN32 (5x5mm)	9	LVTTL	Yes - 4
5V19EE603	QFN28 (4x4mm)	6	LVTTL	No
5V19EE604	QFN28 (4x4mm)	6	LVTTL	Yes - 3
5V19EE403	QFN24 (4x4mm)	4	LVTTL	No
5V19EE404	QFN24 (4x4mm)	4	LVTTL	Yes - 2