Industry Alliances & Technology Commercialization

Available Technologies

Contact Us

Permalink

Request Information

Mult-Frequency Resonant Clock Meshes

Tech ID: 22648 / UC Case 2012-872-0

BACKGROUND

VSLI chips contain gates that are synchronized by clock signals. High performance depends on a high clock rate, but if the gates are unable to maintain the same frequency, the chip doesn't perform well. Therefore, to increase performance, the clock signals need to retain multiple frequencies on the same device without using too much power.

The demand for high performance electronic systems has grown, leading to the use of Very Large Scale Integration (VLSI) chips. These chips have been developed to exhibit higher performance and density, and the current technological aspiration is to continue the advancement of these two aspects. These demands, however, require a great deal of power, which in turn creates more heat, leading to circuit failure.

TECHNOLOGY DESCRIPTION

A UC Santa Cruz researcher has invented a solution to this problem by developing a technique to create resonant clock meshes that resonate at multiple frequencies. The invention adds flexibility by allowing clock drivers to drive different frequencies and to save total chip power.

APPLICATIONS

▶ Integrated circuit design for VLSI chips

ADVANTAGES

- ▶ Uses multiple resonant frequencies, unlike current techniques using one resonant frequency
- ▶ Significantly enhances functionality and performance in circuits while using less power

INTELLECTUAL PROPERTY INFORMATION

Country	Туре	Number	Dated	Case	
United States Of America	Issued Patent	9.143.086	09/22/2015	2012-872	

CONTACT

University of California, Santa Cruz Industry Alliances & Technology Commercialization

innovation@ucsc.edu tel: 831.459.5415.



INVENTORS

► Guthaus, Matthew R.

OTHER INFORMATION

KEYWORDS

Very Large Scale Integration chips,

VLSI chips, resonant clocks,

resonant clock meshes, multi-

frequency, integrated circuit, IC,

integrated circuit design, resonant

frequency, Cat3

CATEGORIZED AS

- Computer
 - ▶ Hardware
 - ▶ Other
 - ▶ Software

▶ Semiconductors

- ▶ Design and Fabrication
- ▶ Other
- ▶ Processing and Production

Engineering

▶ Other

RELATED CASES

2012-872-0

RELATED TECHNOLOGIES

- ▶ Distributed Energy Conserving LC Resonant Clock Trees
- ► Current-Mode Clock Distribution

- ▶ Methods for Integrated Circuit C4 Ball Placement Considering Package Reliability
- ▶ Distributed Energy Conserving LC Resonant Clock Trees
- ► Current-Mode Clock Distribution

University of California, Santa Cruz

Industry Alliances & Technology Commercialization

Kerr 413 / IATC,

Santa Cruz,CA 95064

Tel: 831.459.5415

innovation@ucsc.edu

https://officeofresearch.ucsc.edu/

Fax: 831.459.1658

© 2012 - 2018, The Regents of the University of California

Terms of use

Privacy Notice