

guest OSs, such as Transmission Control Protocol (TCP)/IP, can then be built on top of the low-level interface to simplify ease of relocation to a multi-OS single-platform system.

## Consolidation Reduces Cost and Increases Performance

The net gains from the application of virtualization technology on multicore processor platforms are the elimination of redundant computer and communication hardware, faster communication and coordination between RTOS and GPOS applications, improved reliability and robustness, reuse of proven legacy code, and simplified development and debugging. Systems that previously required multiple discrete

computing platforms can now be combined onto a single-hardware platform, saving costs in design, manufacturing, and maintenance.

## Biography

**Chris Main** (Chris.Main@tenasys.com) received his graduate degree in physics from York University, United Kingdom, and postgraduate degree in education from Bath University. He led the development of TenAsys' virtualization technologies. He has worked in real-time systems, starting with minicomputers and then worked in the iRMX group at Intel. A cofounder of TenAsys, he was in the original development team for INtime and has since guided TenAsys' virtualization solutions.

## References

- [1] A. Vitkalov. (2005, Nov. 21). Heterogeneous multicore processors. Cornell Univ. Sch. Elect. Comput. Eng. [Online]. Available: [http://courses.cit.cornell.edu/engrc335/EW\\_examples/Vitkalov\\_talk.pdf](http://courses.cit.cornell.edu/engrc335/EW_examples/Vitkalov_talk.pdf)
- [2] P. Fischer and C. Szydlowski. (2006, July). Developing applications for parallel architecture CPU chips. *Embedded Computing Design* [Online]. Available: [http://www.embedded-computing.com/articles/fischer\\_and\\_szydlowski/](http://www.embedded-computing.com/articles/fischer_and_szydlowski/)
- [3] D. Neuman, D. Kulkarni, A. Kunze, G. Rogers, and E. Verplanke. (2006, Aug. 10). Intel virtualization technology in embedded and communications infrastructure applications. *Intel Technol. J.* [Online]. 10(3). Available: <http://www.intel.com/technology/itj/2006/v10i3/5-communications/1-abstract.htm>
- [4] S. K. Moore. (2008, Nov.). Multicore is bad news for Supercomputers. *IEEE Spectr.* [Online]. Available: <http://spectrum.ieee.org/nov08/6912>
- [5] A. Vitkalov. (2005, Dec. 12). Power optimization methods in heterogeneous multicore processors [Online]. Available: [http://132.236.67.210/EngrWords/issues/ew04/Vitkalov\\_report.pdf](http://132.236.67.210/EngrWords/issues/ew04/Vitkalov_report.pdf)



## IEEE Industrial Electronics Society

### OFFICERS

Leopoldo G. Franquelo  
*President*  
University of Sevilla  
lgfranquelo@ieee.org

Gerard-Andre Capolino  
*President-Elect*  
University of Picardie "Jules Verne"  
gerard.capolino@ieee.org

John Y. Hung  
*VP Conference Activities*  
Auburn University  
jhung@eng.auburn.edu

Maria I. Valla  
*VP Membership Activities*  
National University of La Plata  
m.i.valla@ieee.org

Xinghuo Yu  
*VP Planning & Development*  
RMIT University  
x.yu@rmit.edu.au

Marco Liserre  
*VP Publications*  
Politecnico di Bari  
liserre@ieee.org

Kamal Al-Haddad  
*VP Technical Activities*  
ETS Montreal  
kamal.al-haddad@etsmtl.ca

Luis Gomes  
*VP Workshop Activities*  
University Nova de Lisboa  
lugo@uninova.pt

Gerhard P. Hancke  
*Secretary*  
University of Pretoria  
g.hancke@ieee.org

Terry Martin  
*Treasurer*  
University of Arkansas  
tmartin@uark.edu

Kouhei Ohnishi  
*Junior Past President*  
Keio University  
ohnishi@sd.keio.ac.jp

Charles W. Einolf, Jr.  
*Senior Past President*  
Consultant  
e.einolf@ieee.org

Mo-Yuen Chow  
*Industrial Electronics*  
*Transactions Editor*  
North Carolina State University  
chow@ncsu.edu

R. Zurawski  
*Industrial Informatics*  
*Transactions Editor*  
ISA Group  
r.zurawski@ieee.org

Mariusz Malinowski  
*Magazine Editor*  
Warsaw University of Technology  
malin@ise.pw.edu.pl

Milos Manic  
*Web Page Editor*  
University of Idaho at Idaho Falls  
mmanic@uidaho.edu

### ELECTED ADCOM MEMBERS

#### Term Expires 2010

Richard Grisel  
University of Rouen

Yoichi Hori  
University of Tokyo

Stavros Koubias  
University of Patras

Ju-Jang Lee  
KAIST

Peter Palensky  
Vienna University of Technology

Adriano Carvalho  
University of Porto

Josep M. Guerrero  
UPC

#### Term Expires 2011

Chandan Chakraborty  
Indian Institute of Technology

Marcian Cirstea  
Anglia Ruskin University

E. Chang  
Curtin University of Technology

D. Dietrich  
Vienna University of Technology

Alexander Fay  
Helmut-Schmidt-Universität

K. Ohnishi  
Nagaoka University of Technology

### Term Expires 2012

J.J. Rodriguez-Andina  
Universidad de Vigo

Armando W. Colombo  
Schneider Electric Automation

Babak Fahimi  
University of Texas at Arlington

Yousef Ibrahim  
Monash University

Seiji Hata  
Kagawa University

Farhat Fnaiech  
ESSTT

H.L. Hess  
University of Idaho

### SENIOR ADCOM MEMBERS

G.O. Beale, G. Buja, C. Cecati, M.Y. Chow, M.W. Condry, C. Couto, P. Drews, L.G. Franquelo, T. Fukuda, G.P. Hancke, T. Hasegawa, H. Hashimoto, J. Holtz, O. Kaynak, M.P. Kazmierkowski, R. Krishnan, K.W. Lim, R. Luo, T. Low, A. Malinowski, K. Man, K. Ohnishi, J. Primentel, I. Rudas, J. Uceda, B.M. Wilamowski, R. Zurawski

### LIFE ADCOM MEMBERS

F. Aldana, R.A. Begun, C. Chen, G. Cook, C.W. Einolf, Jr., P. Gold, M. Greene, H. Haneda, F. Harashima, T. Hori, V.K. Huang, J.C. Hung, J.D. Irwin, K. Jezenrik, R. Ishii, H.W. Mergler, H.T. Nagle, K. Ohnishi, A.E. Pietrzykoski, Y.K. Wo, A. Weaver, M. I. Valla