



RT2012 Conference Program Details

(Preliminary as of Friday, 11 May)

Monday

Open 1 Welcome and Opening Session

Monday, June 11 8:30 Crystal Ballroom

Session Chair: Sergio Zimmermann, LBNL, United States

Welcome

S. Zimmermann, LBNL, USA

Dark Energy from the Largest Galaxy Maps

D. Schlegel, LBNL, USA

Open 2 Opening Session 2

Monday, June 11 11:00 Crystal Ballroom

Session Chair: TBA

(invited) The Development of Large-Area Photodetectors with Sub-Millimeter and Sub-Nanosecond Space and Time Resolutions

H. J. Frisch

University of Chicago, Enrico Fermi Institute and Physics Dept., United States

NSET New Standard, Emerging Technologies and TCA

Monday, June 11 13:35 Crystal Ballroom

Session Chair: TBA

HTML 5, Websockets and Sproutcore - Using Emerging Technologies to Control the Dark Energy Camera (DECam)

K. Honscheid, A. Elliott, K. Patton, E. Suchyta, Ohio State University, United States; E. Buckley Geer, Fermi National Accelerator Laboratory, United States

Recent Progress in Next-Generation Platform Standards for Physics Instrumentation and Controls

R. Larsen, SLAC National Accelerator Laboratory, United States

Scalable SpaceWire Backplane System Using uTCA

T. Yuasa¹, M. Nomachi², T. Takahashi¹, M. Ioki³

¹Japan Aerospace Exploration Agency, Institute of Space and Astronautical Science,

Japan; ²Osaka University, Japan; ³Institute for Unmanned Space Experiment Free Flyer, Japan



MN1 Mini-oral 1

Monday, June 11 14:35 Crystal Ballroom

Session Chair: TBA

Automatic System-Level Synthesis for Heterogeneous Platforms

H. A. Andrade, K. Ravindran

National Instruments Corporation, United States

Monitoring and Improving the ALICE Data Taking Efficiency

V. Barroso¹, F. Carena¹, W. Carena¹, S. Chapeland¹, F. Costa¹, E. Denes², R. Divia¹, A. Grigore³,

G. Simonetti⁴, C. Soos¹, A. Telesca¹, P. Vande Vyvre¹, B. von Haller¹

¹CERN, Switzerland; ²Hungarian Academy of Sciences, Hungary; ³Polytechnic University of Bucharest, Romania; ⁴Universita Bari, Italy

Open-Standard Blade Systems Enable High Performance Applications

S. McClellan, *Texas State University, United States*; K. Austin, A. Deikman, *ZNYX Networks, United States*

An xTCA Compliant and FPGA Based Data Processing Unit for Trigger and Data Acquisition and Trigger Applications

J. Zhao, Z. Liu, H. Xu, *Institute of High Energy and Physics, China*; W. Kuehn, *II. Physikalisches Institut, Justus-Liebig-Universität, Germany*

Performance Evaluation of 8-Channel ADC ATCA Card for Direct Sampling of 1.3 GHz Signals

S. Bou Habib, *ISE-WUT/DESY, Poland*

RF Backplane for MTCA.4 Based LLRF Control System

K. Czuba, *Warsaw University of Technology, Poland*; M. Hoffmann, T. Jezynski, F. Ludwig, H. Schlarb, *DESY, Germany*

Development and Calibration of a Real-Time Airborne Radioactivity Monitor Using Gamma-Ray Spectrometry on a Particulate Filter

R. Casanovas, J. J. Morant, M. Salvado

Universitat Rovira i Virgili, Spain

The XFEL RF Interlock System

M. Penno¹, H. Leich¹, T. Grevsmuehl², C. Rueger¹, K. Machau²

¹DESY Zeuthen, Germany; ²DESY Hamburg, Germany

Asynchronous and Synchronous Implementations of the Autocorrelation Function for the FPGA X-Ray Pixel Array Detector

M. S. Hromalik^{1,2}, K. S. Green², H. T. Philipp², M. T. W. Tate², S. M. Gruner^{2,3}

¹State University of New York at Oswego, United States; ²Cornell University, United States; ³Cornell High Energy Synchrotron Source (CHESS), United States

Real-Time Fast Controller Prototype for J-TEXT Tokamak

W. Zheng, G. Zhuang, M. Zhang, C. Weng, R. Liu, Y. He, T. Ding, X. Zhang

Huazhong University of Science & Technology, China

A Dedicated Processor for Monte Carlo Computation in Radiotherapy

C. Pili^{1,2}, V. Fanti^{1,2}, G. R. Fois^{1,2}, R. Marzeddu^{1,2}, P. Randaccio^{1,2}, S. Siddhanta^{1,2}, J. Spiga^{1,2}, A. Szostak^{1,2}

¹University of Cagliari, Italy; ²INFN Sez. Cagliari, Italy

New RFX-Mod Feedback Control System Based on MARTE Real-Time Framework

G. Manduchi, A. Luchetta, C. Taliercio, A. Soppelsa

Consorzio RFX, Italy

A Single-FPGA Full-Time Beam Former

H. Deschamps, *Commissariat à l'Énergie Atomique, France*



A Two-Stage Distributed Architecture Designed for DAQ of Thousands-Channel Physical Experiment

K. Song^{1,2}, P. Cao^{1,2}, J. Yang^{1,2}

¹University of Science & Technology of China, China; ²State Key Laboratory of Particle Detection and Electronics, China

An Application Using MicroTCA for Real-Time Event Assembly

R. A. Rivera, *Fermilab, United States*

Digital Programmable Emulator and Analyzer of Radiation Detection Setups

A. Geraci, A. Abba, F. Caponio
Politecnico di Milano, Italy

Firmware Upgrade in xTCA Systems

D. Makowski¹, A. Mielczarek¹, G. Jablonski¹, P. Predki¹, T. Jezynski², H. Schlarb², A. Napieralski¹
¹Technical University of Lodz, Poland; ²Deutsche Elektronen-Synchrotron, Germany

Advanced Light Source Control System Upgrade Intelligent Local Controller Redesign

E. Norum, *Lawrence Berkeley National Laboratory, USA*

PS1 Poster Session 1

Monday, June 11 15:40 Boiler Room

Session Chair: TBA

Implementation of an ATCA/AXIe Board for Fast Control and Data Acquisition Systems of Nuclear Fusion Devices

A. J. N. Batista¹, C. Leong², V. Bexiga², A. P. Rodrigues¹, A. Combo¹, B. B. Carvalho¹, P. Ricardo¹,
J. Fortunato¹, B. Santos¹, P. Carvalho¹, M. Correia¹, J. P. Teixeira², I. C. Teixeira², J. Sousa¹,
B. Goncalves¹, C. A. F. Varandas¹

¹Instituto Superior Tecnico - Universidade Tecnica de Lisboa, Portugal; ²INESC-ID, Portugal

Automatic System-Level Synthesis for Heterogeneous Platforms

H. A. Andrade, K. Ravindran
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Monitoring and Improving the ALICE Data Taking Efficiency

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¹CERN, Switzerland; ²Hungarian Academy of Sciences, Hungary; ³Polytechnic University of Bucharest, Romania; ⁴Universita Bari, Italy

Open-Standard Blade Systems Enable High Performance Applications

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An xTCA Compliant and FPGA Based Data Processing Unit for Trigger and Data Acquisition and Trigger Applications

J. Zhao, Z. Liu, H. Xu, *Institute of High Energy and Physics, China*; W. Kuehn, *II. Physikalisches Institut, Justus-Liebig-Universitaet, Germany*

Overview of the Data Acquisition Electronics and Concepts for Photon Experiments and Beamlines at the European XFEL

P. Gessler, C. Youngman, M. Kuster, B. Fernandes, O. Batindek
European X-Ray Free Electron Laser Facility GmbH, Germany

Performance Evaluation of 8-Channel ADC ATCA Card for Direct Sampling of 1.3 GHz Signals

S. Bou Habib, *ISE-WUT/DESY, Poland*



Vector Modulator Card for MTCA-Based LLRF Control System for Linear Accelerators

I. Rutkowski, K. Czuba, *Warsaw University of Technology, Poland*; D. Makowski, A. Mielczarek, *Technical University of Lodz, Poland*; H. Schlarb, F. Ludwig, *Deutsches Elektronen Synchrotron, Germany*

RF Backplane for MTCA.4 Based LLRF Control System

K. Czuba, *Warsaw University of Technology, Poland*; M. Hoffmann, T. Jezynski, F. Ludwig, H. Schlarb, *DESY, Germany*

Timing Distribution and Synchronization of an ATCA Fast Controller for Fusion Devices

M. Correia¹, J. Sousa¹, B. B. Carvalho¹, A. Combo¹, A. P. Rodrigues¹, A. J. N. Batista¹, B. Santos¹, P. R. F. Carvalho¹, B. Goncalves¹, C. M. B. A. Correia², C. A. F. Varandas¹
¹*Instituto Superior Tecnico - Universidade Tecnica de Lisboa, Portugal*; ²*Universidade de Coimbra, Portugal*

Intelligent Platform Management Controller Software Architecture in ATCA Modules for Fast Control Systems

A. P. Rodrigues¹, M. Correia¹, A. J. N. Batista¹, P. R. Carvalho¹, B. Santos¹, B. B. Carvalho¹, J. Sousa¹, B. Goncalves¹, C. C. M. B. Correia², C. A. F. Varandas¹
¹*Instituto Superior Tecnico - Universidade Tecnica de Lisboa, Portugal*; ²*Universidade de Coimbra, Portugal*

Firmware Upgrade in xTCA Sytems

D. Makowski¹, A. Mielczarek¹, G. Jablonski¹, P. Predki¹, T. Jezynski², H. Schlarb², A. Napieralski¹
¹*Technical University of Lodz, Poland*; ²*Deutsche Elektronen-Synchrotron, Germany*

Standalone First Level Event Selection Package for the CBM Experiment

I. Kisel^{1,2,3}, I. Kulakov^{1,3}, M. Zyzak^{1,3}
¹*Goethe University Frankfurt, Germany*; ²*FIAS Frankfurt Institute for Advanced Studies, Germany*; ³*GSI Helmholtzzentrum fuer Schwerionenforschung, Germany*

The XFEL RF Interlock System

M. Penno¹, H. Leich¹, T. Grevsmuehl², C. Rueger¹, K. Machau²
¹*DESY Zeuthen, Germany*; ²*DESY Hamburg, Germany*

Development and Calibration of a Real-Time Airborne Radioactivity Monitor Using Gamma-Ray Spectrometry on a Particulate Filter

R. Casanovas, J. J. Morant, M. Salvado
Universitat Rovira i Virgili, Spain

Using Data-Oriented Storage Method to Build a High-Parallel and High-Efficiency Disk Cluster

J. Wu, L. F. Liu, Z. Han, S. Chen, J. Shan, K. Y. Tian, J. Dong
University of Sci. & Tech. of China, China, 230026

Asynchronous and Synchronous Implementations of the Autocorrelation Function for the FPGA X-Ray Pixel Array Detector

M. S. Hromalik^{1,2}, K. S. Green², H. T. Philipp², M. T. W. Tate², S. M. Gruner^{2,3}
¹*State University of New York at Oswego, United States*; ²*Cornell University, United States*; ³*Cornell High Energy Synchrotron Source (CHESS), United States*

Real-Time Fast Controller Prototype for J-TEXT Tokamak

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Huazhong University of Science & Technology, China

A Dedicated Processor for Monte Carlo Computation in Radiotherapy

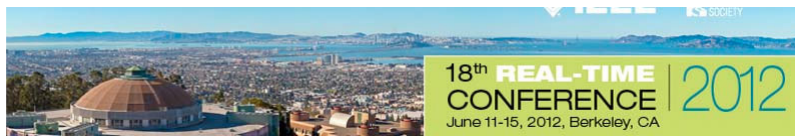
C. Pili^{1,2}, V. Fanti^{1,2}, G. R. Fois^{1,2}, R. Marzeddu^{1,2}, P. Randaccio^{1,2}, S. Siddhanta^{1,2}, J. Spiga^{1,2}, A. Szostak^{1,2}
¹*University of Cagliari, Italy*; ²*INFN Sez. Cagliari, Italy*

New RFX-Mod Feedback Control System Based on MARTe Real-Time Framework

G. Manduchi, A. Luchetta, C. Taliercio, A. Soppelsa, Consorzio RFX, Italy

Real Time FPGA-Based Crosstalk Elimination for Multichannel Interferometry Systems in Fusion Diagnostics

S. Hernandez-Montero, J. A. Lopez-Martin, *Universidad Politecnica de Madrid, Spain*; M. Sanchez, L. Esteban, *CIEMAT, Spain*



A Real-Time Architecture for the Identification of Faulty Magnetic Sensors in the JET Tokamak

A. C. Neto¹, D. Alves¹, B. B. Carvalho¹, G. De Tommasi², H. Fernandes¹, P. J. Lomas³, F. Maviglia², F. Sartori⁴, A. V. Stephen³, D. F. Valcarcel¹, L. Zabeo⁵

¹EURATOM-IST, Portugal; ²EURATOM-ENEA/CREATE, Italy; ³EURATOM-CCFE, United Kingdom; ⁴Fusion for Energy, Spain; ⁵ITER Organisation, France

Parallel Task Management Library for MARTe

D. F. Valcarcel¹, D. Alves¹, B. B. Carvalho¹, R. Felton², P. J. Lomas², A. Neto¹, C. Reux³, J. Sousa¹, L. Zabeo⁴, JET EFDA Contributors^{*5}

¹Associação EURATOM/IST, Instituto de Plasmas e Fusão Nuclear, Instituto Superior Técnico, UTL, Portugal; ²Euratom/CCFE Fusion Association, Culham Science Centre, UK; ³Ecole Polytechnique, LPP, CNRS UMR 7648, France; ⁴ITER Organisation, France; ⁵JET-EFDA, Culham Science Centre, UK

A Real-Time Data Transmission Method Based on Linux for Physical Experimental Readout Systems

P. Cao^{1,2}, K. Song^{1,2}, J. Yang^{1,2}, K. Zhang^{1,2}

¹State Key Laboratory of Particle Detection and Electronics, China; ²University of Science and Technology of China, China

A Single-FPGA Full-Time Beam Former

H. Deschamps, *Commissariat à l'Énergie Atomique, France*

A Two-Stage Distributed Architecture Designed for DAQ of Thousands-Channel Physical Experiment

K. Song^{1,2}, P. Cao^{1,2}, J. Yang^{1,2}

¹University of Science & Technology of China, China; ²State Key Laboratory of Particle Detection and Electronics, China

A New Generation of Real-Time Systems in the JET Tokamak

D. M. Alves¹, A. C. Neto¹, D. F. Valcarcel¹, R. Felton², J. M. Lopez³, A. Barbalace⁴, L. Boncagni⁵, P. Card², A. Goodyear², S. Jachmich^{6,7}, P. J. Lomas², F. Maviglia⁸, P. A. McCullen², A. Murari⁴, M. Rainford², C. Reux⁹, F. Rimini², F. Sartori¹⁰, A. V. Stephen², J. Vega¹¹, R. Vitelli¹², L. Zabeo¹³, K.-D. Zastrow²

¹Associação EURATOM/IST, Instituto de Plasmas e Fusão Nuclear - Laboratório Associado, Portugal; ²EURATOM/CCFE Fusion Association, Culham Science Centre, Abingdon, Oxon, OX14 3DB, United Kingdom; ³CAEND, Universidad Politécnica de Madrid, Spain, Spain; ⁴Associazione EURATOM-ENEA sulla Fusione, Consorzio RFX, Padova, Italy, Italy; ⁵Associazione EURATOM/ENEA, 00040 Frascati, Italy, Italy; ⁶Laboratory for Plasma Physics, Ecole Royale Militaire/Koninklijke Militaire School, EURATOM-Associat, Belgium; ⁷EFDA-CSU, Culham Science Centre, Abingdon, OX14 3DB, UK, United Kingdom; ⁸Associazione EURATOM-ENEA-CREATE, Univ. di Napoli Federico II, Via Claudio 21, 80125, Napoli, Italy, Italy; ⁹Ecole Polytechnique, LPP, CNRS UMR 7648, 91128 Palaiseau, France, France; ¹⁰Fusion for Energy, 08019 Barcelona, Spain, Spain; ¹¹Laboratorio Nacional de Fusión, Asociación EURATOM-CIEMAT, Madrid, Spain, Spain; ¹²Dipartimento di Informatica, Sistemi e Produzione, Università di Roma Tor Vergata 00133 Rome, Italy, Italy; ¹³ITER, St. Paul-Lez-Durance 13108, France, France

An Application Using MicroTCA for Real-Time Event Assembly

R. A. Rivera, *Fermilab, United States*

Digital Programmable Emulator and Analyzer of Radiation Detection Setups

A. Geraci, A. Abba, F. Caponio

Politecnico di Milano, Italy

Phase and Amplitude Drift Calibration of the RF Detectors in a MTCA.4 Based LLRF System

J. Piekarski¹, K. Czuba¹, M. Hoffmann², W. Jalmuzna³, F. Ludwig², H. Schlarb², C. Schmidt², B. Yang²

¹Institute of Electronic Systems, Poland; ²Deutsches Elektronen-Synchrotron, Germany; ³Technical University of Lodz, Poland

Ultra-Fast Streaming Camera Platform for Scientific Applications

M. Caselle, M. Balzer, S. Chilingaryan, A. Herth, A. Kopmann, U. Stevanovic, M. Vogelgesang
Karlsruhe Institute of Technology, Germany

Advanced Light Source Control System Upgrade Intelligent Local Controller Redesign,

E. Norum, *Lawrence Berkeley National Laboratory, USA*

The LHCb off-Site HLT Farm Demonstration, G. Liu, *N. Neufeld, CERN, Switzerland*



RTSA Real Time System Architectures

Monday, June 11 17:00 Crystal Ballroom

Session Chair: TBA

Auger ACCESS - Remote Monitoring and Controlling the Auger Experiment

T. Jejkal¹, H.-J. Mathes¹, J. Rautenberg², M. Kleifges¹, H. Gemmeke¹

¹*Karlsruhe Institute of Technology, Germany;* ²*University of Wuppertal, Germany*

Belle2Link: an Unified High Speed Data Collection with Slow Control in Belle II Experiment

Z.-A. Liu, D. Sun, J. Zhao, H. Lin, F. Guo, C. Wang, *Inst. of High Energy Physics, Chinese Academy of Sciences, China*; M. Nakao, R. Itoh, T. Higuchi, S. Y. Suzuki, *KEK, Japan*

A System for Monitoring and Tracking the LHC Beam Spot Within the ATLAS High Level Trigger

R. Bartoldus, J. Cogan, A. Salnikov, E. Strauss, *SLAC, United States*; F. Winklmeier, *CERN, Switzerland*

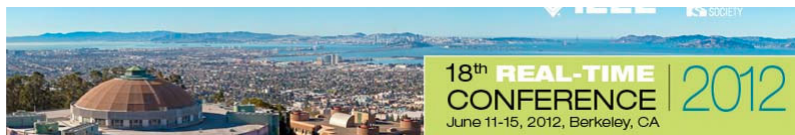
Data Flow and High Level Trigger of Belle II DAQ System

R. Itoh, T. Higuchi, M. Nakao, S. Y. Suzuki, *KEK, Japan*; S. Lee, *Korea University, Korea*

A Prototype Clock System for LHAASO WCDA

L. Shang^{1,2}, K. Song^{1,2}, P. Cao^{1,2}, C. Li^{1,2}, S. Liu^{1,2}, Q. An^{1,2}

¹*University of Science and Technology of China, China;* ²*State Key Laboratory of Particle Detection and Electronics, China*



Tuesday

TRG Triggers

Tuesday, June 12 08:30 Crystal Ballroom

Session Chair: TBA

(invited) LHC Trigger & DAQ - an Introductory Overview

N. Neufeld, *CERN, Switzerland*

The ALICE High Level Trigger: the 2011 Run Experience.

T. Kollegger (*), *FIAS/University of Frankfurt, Germany*

The evolution and performance of the ATLAS calorimeter-based triggers in 2011 and 2012

M. Wessels, *University of Heidelberg, KIP, Germany*

Use of Expert System and Data Analysis Technologies in Automation of Error Detection, Diagnosis and Recovery for ATLAS Trigger-DAQ Controls Framework

A. Kazarov, *Petersburg Nuclear Physics Institute, NRC Kurchatov Institute, Russia*; G. Lehmann Miotto, *L. Magoni*, *CERN, Switzerland*; A. Corso Radu, *University of California Irvine, USA*

Evolution and Performance of the ATLAS Trigger System with p-p Collisions at 7 TeV

I. Riu, *IFAE, Spain*

Recent Experience and Future Evolution of the CMS High Level Trigger System

A. C. Spataru¹, G. Bauer², U. Behrens³, J. Branson⁴, S. Bukowiec¹, O. Chaze¹, S. Cittolin^{5,4}, J. A. Coarasa¹, C. Deldicque¹, M. Dobson¹, A. Dupont¹, S. Erhan⁴, D. Gigi¹, F. Gleze¹, R. Gomez-Reino¹, C. Hartl¹, A. Holzner⁴, L. Masetti¹, F. Meijers¹, E. Meschi¹, R. K. Mommsen⁶, C. Nunez-Barranco-Fernandez¹, V. O'Dell⁶, L. Orsini¹, C. Paus², A. Petrucci¹, M. Pieri⁴, G. Polese¹, A. Racz¹, O. Raginel², H. Sakulin¹, M. Sani⁴, C. Schwick¹, F. Stoeckli², K. Sumorok²

¹*CERN, Switzerland*; ²*Massachusetts Institute of Technology, USA*; ³*DESY, Germany*; ⁴*University of California, California, USA*; ⁵*Eidgenossische Technische Hochschule, Switzerland*; ⁶*FNAL, USA*

MSP1 Monitoring and Signal Processing 1

Tuesday, June 12 11:00 Crystal Ballroom

Session Chair: TBA

Novel, Highly-Parallel Software for the Online Storage System of the ATLAS Experiment at CERN: Design and Performances

T. Colombo^{1,2}, W. Vandelli¹

¹*CERN, Switzerland*; ²*Universita' di Pavia, Italy*

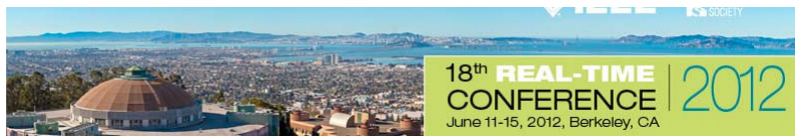
Advanced Visualization System for Monitoring the ATLAS TDAQ Network in Real-Time

S. Batraneanu, *University of California, Irvine, United States*; D. Campora Perez, *University of Seville, Spain*; B. Martin, D. Savu, S. Stancu, *CERN, Switzerland*; L. Leahu, *Politehnica University Bucharest, Romania*

A High-Throughput Platform for Real-Time X-Ray Imaging

S. A. Chilingaryan¹, M. Vogelgesang¹, T. dos Santos Rolo¹, A. Mirone², A. Kopmann¹

¹*Karlsruhe Institute of Technology, Germany*; ²*European Synchrotron Radiation Facility, France*



MO2 Mini-orals 2

Tuesday, June 12 12:00 Crystal Ballroom

Session Chair: TBA

MSP2 Monitoring and Signal Processing 2

Tuesday, June 12 13:35 Crystal Ballroom

Session Chair: TBA

artdaq: An Event Filtering Framework for Fermilab Experiments

K. Biery, C. Green, J. Kowalkowski, M. Paterno, R. Rechenmacher

Fermi National Accelerator Lab, United States

FPGA/NIOS Implementation of an Adaptive FIR Filter Using Linear Prediction to Reduce Narrow-Band RFI for Radio Detection of Cosmic Rays

Z. Szadkowski, *University of Lodz, Poland*; D. Fraenkel, A. M. van den Berg, *University of Groningen, Netherlands*

FPGA-Based Algorithm for Center of Gravity Calculation of Clustered Signals

A. A. Ushakov¹, B. Mindur², T. Fiutowski², C. Schulz¹

¹*Helmholtz-Zentrum Berlin, Germany*; ²*AGH University for Science and Technology, Poland*

MO3 Mini-orals 3

Tuesday, June 12 14:35 Crystal Ballroom

Session Chair: TBA

A MAC Layer Congestion Control Method to Achieve High Network Performance for EAST Tokamak

K. Shi^{1,2}, Y. Shu², S. Lin¹, J. Luo³

¹*Tianjin University of Technology, China*; ²*Tianjin University, China*; ³*Academia Sinica, China*

High Performance Event Building with InfiniBand Network in CBM Experiment

S. Linev

GSI Helmholtzzentrum fuer Schwerionenforschung, Germany

Modulator-Based, High Bandwidth Optical Links for HEP Experiments

W. S. Fernando, R. W. Stanek, D. G. Underwood, D. Lopez

Argonne National Lab, United States

A High Density Time-to-Digital Converter Prototype Module for BESIII End-Cap TOF Upgrade

H. Fan, C. Feng, W. Sun, C. Yin, S. Liu, Q. An

University of Science and Technology of China, China

Development of White Rabbit Interface for Synchronous Data Acquisition and Timing Control

Q. Du, G. Gong, W. Pan, H. Lu, *Tsinghua University, China*

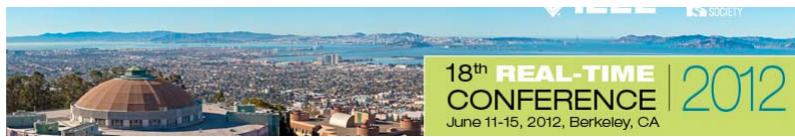
Data Formatter System for the ATLAS Fast Tracker

J. Olsen, T. Liu, B. Penning, *Fermi National Accelerator Laboratory, United States*; H. L. Li, *University of Chicago, United States*

Commissioning and Performance of a Fast Level-2 Trigger System at VERITAS

B. Zitzer¹, A. Weinstein², M. Schroedter³, M. Orr³, M. Oberling¹, A. Kreps¹, F. Krennrich², G. Drake¹, K. Byrum¹, J. T. Anderson¹

¹*Argonne National Laboratory, United States*; ²*Iowa State University, United States*; ³*Smithsonian Astrophysical Observatory, United States*



The ATLAS Hadronic Tau Trigger

C. Cuenca Almenar, *Yale University, Switzerland*

Multifunction-Timing Card ITTEV2 for CoDaC Systems of Wendelstein 7-X

J. Schacht, *Max-Planck-Institute for Plasmaphysics, Germany*; J. Skodzik, *University Rostock, Germany*

HAWC TeV Gamma Ray Observatory Trigger System

M. DuVernois, *University of Wisconsin, United States*

Development of the Control Card for the Digitizers of the Second Generation Electronics of AGATA

D. Barrientos^{1,2,3}, V. Gonzalez³, M. Bellato², A. Gadea¹, D. Bazzacco², J. M. Blasco³, D. Bortolato²,
F. J. Egea^{1,3}, R. Isocrate², A. Pullia⁴, G. Rampazzo², E. Sanchis³, A. Triossi²

¹*Instituto de Física Corpuscular (CSIC-UV), Spain*; ²*Istituto de Fisica Nucleare (INFN), Sezione di Padova, Italy*; ³*Departamento Ingeniera Electronica, Universitat de Valencia, Spain*; ⁴*Istituto de Fisica Nucleare (INFN), Sezione di Milano, Italy*

PS2 Poster Session 2

Tuesday, June 12 15:55 Boiler Room

Session Chair: TBA

High Performance FPGA-Based DMA Interface for PCIe

H. Kavianipour, S. Muschter, C. Bohm
Stockholm University, Sweden

Low Power, Accurate Time Synchronization MAC Protocol for Real-Time Wireless Data Acquisition

J. Zhang, J. Wu, Z. Han, L. Liu, K. Tian
University of Science and Technology of China, China

A MAC Layer Congestion Control Method to Achieve High Network Performance for EAST Tokamak

K. Shi^{1,2}, Y. Shu², S. Lin¹, J. Luo³
¹*Tianjin University of Technology, China*; ²*Tianjin University, China*; ³*Academia Sinica, China*

High Performance Event Building with InfiniBand Network in CBM Experiment

S. Linev
GSI Helmholtzzentrum fuer Schwerionenforschung, Germany

Modulator-Based, High Bandwidth Optical Links for HEP Experiments

W. S. Fernando, R. W. Stanek, D. G. Underwood, D. Lopez
Argonne National Lab, United States

Waveform Timing Algorithms with a 5 GS/s Fast Pulse Sampling Module

J. Wang^{1,2}, L. Zhao^{1,2}, C. Feng^{1,2}, Y. Zhang^{1,2}, S. Liu^{1,2}, Q. An^{1,2}
¹*University of Science and Technology of China, China*; ²*Department of Modern Physics, University of Science and Technology of China, China*

The Study of Multi-Channel High Precision Pulse Synchronizer

F. Li^{1,2}, G. Jin^{1,2}
¹*State Key Laboratory of Particle Detection and Electronics, China*; ²*University of Science and Technology of China, China*

Sophisticated Online Analysis in ADC Boards

P. Wuestner¹, A. Erven¹, W. Erven¹, G. Kemmerling¹, H. Kleines¹, P. Kulesa², P. Marciniowski³,
H. Ohm¹, K. Pysz¹, V. Serdyuk¹, S. van Waasen¹, P. Wintz¹
¹*Research Centre Juelich, Germany*; ²*Institute of Nuclear Physics PAN, Poland*; ³*Uppsala University, Sweden*



A High Density Time-to-Digital Converter Prototype Module for BESIII End-Cap TOF Upgrade

H. Fan, C. Feng, W. Sun, C. Yin, S. Liu, Q. An

University of Science and Technology of China, China

Development of White Rabbit Interface for Synchronous Data Acquisition and Timing Control

Q. Du, G. Gong, W. Pan, H. Lu, *Tsinghua University, China*

A High-Resolution Time-to-Digital Converter Based on Multi-Phase Clock Implement in Field-Programmable-Gate-Array

Z. Yin, S. Liu, X. Hao, S. Gao, Q. An

University of Science and Technology of China, China

Real-Time Data Analysis Using the WaveDREAM Data Acquisition System

H. Friederich^{1,2}, G. Davatz^{1,2}, U. Gendotti¹, H. Meyer¹, D. Murer^{1,2}

¹Arktis Radiation Detectors Ltd, Switzerland; ²ETH Zurich, Institute for Particle Physics, Switzerland

DSP Based Smart Sensorless Stepping Motor Driver for LHC Collimators

A. Masi, M. Butcher, R. Losito, R. Picatoste Ruilope

CERN, Switzerland

High Accuracy Reading Algorithm for Ironless Linear Position Sensor

A. Masi, A. Danisi, M. Di Castro, R. Losito

CERN, Switzerland

VHDL Design of Digital Adaptive Filters for PANDA Signal Processing

M. Greco, M. P. Bussa, M. Destefanis, M. Maggiora, S. Spataro

University of Torino and INFN, Italy

Upgrade Project and Plans for the ATLAS Detector and Trigger

F. Pastore

Royal Holloway University of London, United Kingdom

Experience with the Custom-Developed ATLAS Trigger Monitoring and Reprocessing Infrastructure

V. Bartsch, *University of Sussex, United Kingdom*; S. George, *Royal Holloway University of London, United Kingdom*; M. zur Nedden, *Humboldt-Universitaet zu Berlin, Germany*

Optimization of the detection of very inclined showers using a spectral DCT trigger in arrays of surface detectors

Z. Szadkowski, *University of Lodz, Poland*

Data Formatter System for the ATLAS Fast Tracker

J. Olsen, T. Liu, B. Penning, *Fermi National Accelerator Laboratory, United States*; H. L. Li, *University of Chicago, United States*

COTS Real Time Quench Detection System for Superconducting Magnets

R. Rajagopal, *Verivolt LLC., United States*; S. Wunder, *National Instruments, United States*

Commissioning and Performance of a Fast Level-2 Trigger System at VERITAS

B. Zitzer¹, A. Weinstein², M. Schroedter³, M. Orr³, M. Oberling¹, A. Kreps¹, F. Krennrich², G. Drake¹, K. Byrum¹, J. T. Anderson¹

¹Argonne National Laboratory, United States; ²Iowa State University, United States; ³Smithsonian Astrophysical Observatory, United States

The ATLAS Hadronic Tau Trigger

C. Cuenca Almenar, *Yale University, Switzerland*

The ATLAS Muon Trigger Performance in Proton-Proton Collisions at Sqrt(s)=7 TeV

K. Nagano, *KEK, Japan*; K. Black, *Boston University, US*

A Hardware Tracker Finder (FTK) for ATLAS Trigger

J. Zhang, *Argonne National Lab, United States*

Multifunction-Timing Card ITTEV2 for CoDaC Systems of Wendelstein 7-X

J. Schacht, *Max-Planck-Institute for Plasmaphysics, Germany*; J. Skodzik, *University Rostock, Germany*

The ATLAS Jet Trigger

M. Campanelli, *university college london, United Kingdom*



HAWC TeV Gamma Ray Observatory Trigger System

M. DuVernois, University of Wisconsin, United States

Development of the Control Card for the Digitizers of the Second Generation Electronics of AGATA

D. Barrientos^{1,2,3}, V. Gonzalez³, M. Bellato², A. Gadea¹, D. Bazzacco², J. M. Blasco³, D. Bortolato², F. J. Egea^{1,3}, R. Isocrate², A. Pullia⁴, G. Rampazzo², E. Sanchis³, A. Triossi²

¹Instituto de Fisica Corpuscular (CSIC-UV), Spain; ²Istituto de Fisica Nucleare (INFN), Sezione di Padova, Italy; ³Departamento Ingeniera Electronica, Universitat de Valencia, Spain; ⁴Istituto de Fisica Nucleare (INFN), Sezione di Milano, Italy

UPG1 Upgrades 1

Tuesday, June 12 17:15 Crystal Ballroom

Session Chair: TBA

MEP V2, the New Event Building Protocol for the Upgraded LHCb Experiment

R. Schwemmer, N. Neufeld, G. Liu, CERN, Switzerland

A New Readout Control System for the LHCb Upgrade at CERN

F. Alessio, R. Jacobsson, CERN, Switzerland

Topological and Central Trigger Processor for 2014 LHC luminosities

J. T. Childers, G. Anders, B. Bauss, D. Berge, V. Buscher, R. Degele, E. Dobson, A. Ebling, N. Ellis, P. Farthouat, C. Gabaldon, B. Gorini, S. Haas, W. Ji, M. Kaneda, S. Maettig, A. Messina, C. Meyer, S. Moritz, T. Pauly, R. Pottgen, U. Schafer, E. Simioni, R. Spiwoaks, S. Tapprogge, T. Wengler, V. Wengler, CERN, Switzerland



Wednesday

DAQ1 Data Acquisition 1 / Medical Imaging

Wednesday, June 13 08:30 Crystal Ballroom

Session Chair: TBA

The Trend of Data Path Structures for Data Acquisition Systems (DAQ) in Positron Emission Tomography (PET) Systems

E. Kim, P. D. Olcott, K. J. Hong, J. Y. Yeom, C. S. Levin

Stanford University, USA

Design of a Real-Time FPGA-Based DAQ for the LabPET II, an APD-Based Scanner Dedicated to Small Animal PET Imaging

L. Njejimana, M.-A. Tetrault, L. Arpin, A. Burghgraeve, P. Maille, J.-C. Lavoie, C. Paulin, K. C. Koua, H. Bouziri, S. Panier, M. W. Ben Attouch, M. Abidi, J.-F. Pratte, R. Lecomte, R. Fontaine

Universite de Sherbrooke, Canada

A Building Block for Nuclear Medicine Imaging Systems Data Acquisition

T. K. Lewellen, R. S. Miyaoka, D. DeWitt, S. Hauck

University of Washington, United States

3D Ultrasound Computer Tomography for Breast Cancer Diagnosis

M. Balzer, M. Birk, R. Dapp, A. Menshikov, M. Zapf, H. Gemmeke, N. Ruiter

KIT, Germany

FPGA-Based Multi-Channel DAQ Systems with External PCI Express Link to GPU Compute Servers

T. Bergmann¹, D. Bormann¹, M. A. Howe², M. Kleifges¹, A. Kopmann¹, N. Kunka¹, A. Menshikov¹, D. Tcherniakhovski¹

¹Karlsruhe Institute of Technology, Germany; ²University of North Carolina, USA

UPG2 Upgrades 2

Wednesday, June 13 11:00 Crystal Ballroom

Session Chair: TBA

The Generic Evaluation Tool for the LHCb Event Builder Network Upgrade

G. Liu, N. Neufeld, *CERN, Switzerland*

MO4 Mini-orals 4

Wednesday, June 13 12:00- Crystal Ballroom

Session Chair: TBA

Readout Electronics and Data Acquisition of a Time of Flight Detector for Positron Emission Tomography

J. Y. Yeom, V. Spanoudaki, K. J. Hong, C. S. Levin

Stanford University, United States

Design of the Trigger Interface and Distribution Board for CEBAF 12 GeV Upgrade

W. Gu, D. Abbott, C. Cuevas, G. Heyes, E. Jastrzembski, B. Moffit, B. Raydo, J. Wilson, H. Dong, S. Kaneta, N. Nganga, C. Timmer, V. Gyurjyan, *Jefferson Lab, United States*



The Readout Electronics of the Micromegas-Based Large Time Projection Chamber Prototype for the International Linear Collider

D. Calvet, D. Attie, D. Besin, P. Colas, R. Joannes, A. Le Coguie, S. Lhenoret, I. Mandjavidze, M. Riallot, W. Wang, E. Zonca
CEA-IRFU, France

Design of an Optical Uplink with 10Gbit/s Link Between PCIe and MicroTCA

H. Kleines, P. Wstner, A. Ackens, M. Drochner, P. Kmmmerling, S. van Waasen, M. Ramm
Forschungszentrum Jülich, Germany

Development of an AMC Module MMC

P. Kaemmerling, M. Drochner, H. Kleines, S. van Waasen, M. Ramm, A. Ackens
Forschungszentrum Juelich, Germany

New strategy for the control of low frequency large band mechanical suspensions and inertial platforms

F. Barone^{1,2}, F. Acernese^{1,2}, R. De Rosa^{3,2}, G. Giordano¹, R. Romano^{1,2}

¹Universita' di Salerno, Italy; ²Istituto Nazionale di Fisica Nucleare, Italy; ³Universita' di Napoli Federico II, Italy

SEUs Tolerance in FPGAs Based Digital LLRF System for XFEL

M. K. Grecki, *DESY, Hamburg, Germany*

Multiple Register Synchronization with a High-Speed Serial Link Using the Aurora Protocol

D. Barrientos^{1,2,3}, V. Gonzalez³, M. Bellato², A. Gadea¹, D. Bazzacco², J. M. Blasco³, D. Bortolato², F. J. Egea^{1,3}, R. Isocrate², A. Pullia⁴, G. Rampazzo², E. Sanchis³, A. Triossi²

¹Instituto de Física Corpuscular (CSIC-UV), Spain; ²Istituto de Fisica Nucleare (INFN), Sezione di Padova, Italy; ³Departamento Ingeniera Electronica, Universitat de Valencia, Spain; ⁴Istituto de Fisica Nucleare (INFN), Sezione di Milano, Italy

Graphical User Interface for Serial Protocols Through a USB Link

D. Barrientos^{1,2,3}, V. Gonzalez³, M. Bellato², A. Gadea¹, D. Bazzacco², J. M. Blasco³, D. Bortolato², F. J. Egea^{1,3}, R. Isocrate², A. Pullia⁴, G. Rampazzo², E. Sanchis³, A. Triossi²

¹Instituto de Física Corpuscular (CSIC-UV), Spain; ²Istituto de Fisica Nucleare (INFN), Sezione di Padova, Italy; ³Departamento Ingeniera Electronica, Universitat de Valencia, Spain; ⁴Istituto de Fisica Nucleare (INFN), Sezione di Milano, Italy

EXC Excursion

Wednesday, June 13 12:30-18:00

Session Chair: TBA



Thursday

DAQ2 Data Acquisition 2 / Fusion

Thursday, June 14 08:30 Crystal Ballroom

Session Chair: TBA

Trends on Control and Data Acquisition in Fusion Devices: Towards High Availability

B. Gonaves

Associao Euratom-IST, Instituto de Plasmas e Fusao Nuclear-Laboratrio Associado, Instituto Superi, Portugal

Feedforward Power Distortion Correction in RF Power Delivery Systems for Plasma Processing Systems

D. J. Coumou, *MKS, ENI Products, United States*

Prototyping Control and Data Acquisition for the ITER Neutral Beam Test Facility

A. Luchetta¹, G. Manduchi¹, A. Soppelsa¹, C. Taliercio¹, F. Paolucci², F. Sartori², P. Barbato¹, M. Breda¹, R. Capobianco¹, F. Molon¹, M. Moressa¹, S. Polato¹, P. Simionato¹, E. Zampiva¹

¹*Consorzio RFX - CNR, Italy*; ²*Fusion for Energy, Spain*

Real-Time Processing System for the JET Hard X-Ray and Gamma-Ray Profile Monitor Enhancement

A. M. Fernandes¹, R. C. Pereira¹, A. Neto¹, D. F. Valcarcel¹, J. Sousa¹, B. B. Carvalho¹, V. Kiptily², B. Syme², P. Blanchard³, A. Murari⁴, C. M. B. A. Correia⁵, C. A. F. Varandas¹, JET-EFDA Contributors⁶

¹*Instituto Superior Tecnico, Universidade Tecnica de Lisboa, Portugal*; ²*Culham Science Centre, UK*; ³*Ecole Polytechnique Federale de Lausanne (EPFL), CRPP, Switzerland*; ⁴*Consorzio RFX, Italy*; ⁵*Dept. de Fisica, Universidade de Coimbra, Portugal*; ⁶*See the Appendix of F. Romanelli et al., Proceedings of the 23rd IAEA Fusion Energy Conference 2010, Korea*

Study of Radiation Damage in Front-End Electronics Components

T. Higuchi, M. Nakao, R. Itoh, S. Y. Suzuki, *High Energy Accelerator Research Organization, Japan*; E. Nakano, *Osaka City University, Japan*

Readout Hardware and Firmware Architecture of the HFT PXL Detector at STAR

J. Schambach¹, L. Greiner², T. Stezelberger², X. Sun², M. Szelezniak^{2,3}, C. Vu²

¹*University of Texas at Austin, United States*; ²*Lawrence Berkeley National Laboratory, United States*; ³*IPHC (Institut Pluridisciplinaire Hubert Curien), France*

DAQ3 Data Acquisition 3

Thursday, June 14 11:00 Crystal Ballroom

Session Chair: TBA

The Belle II Pixel Detector Data Acquisition and Reduction System

B. Spruck¹, T. Gessler¹, W. Kuehn¹, S. Lange¹, H. Lin², Z. Liu², D. Muenchow¹, H. Xu^{1,2}, J. Zhao²

¹*University Giessen, Germany*; ²*Institute of High Energy Physics, China*

Design Concepts for a Hierarchical Synchronized Data Acquisition Network for CBM

F. Lemke, U. Bruening, *University of Heidelberg, Germany*

Electromagnetic Calorimeter Trigger for PANDA Experiment

Z.-A. Liu, Q. Wang, H. Xu, J. Zhao, H. Lin, *Inst. of High Energy Physics, Chinese Academy of Sciences, China*; T. Gessler, S. Lange, D. Muenchow, B. Spruck, W. Kuehn, *Justus-Libig-universitat Giessen, Germany*



MO5 Mini-orals 5

Thursday, June 14 12:00 Crystal Ballroom

Session Chair: TBA

DAQ4 Data Acquisition 4

Thursday, June 14 13:35 Crystal Ballroom

Session Chair: TBA

Extending the IceCube DAQ System by Integration of the Generic, High-Speed Sorter Module TESS

C. C. W. Robson, *Stockholms universitet, Sweden*; K. Hanson, *Universit Libre de Bruxelles, Belgium*

Readout of GEM Stacks with the CERN SRS System

M. L. Purschke

Brookhaven National Laboratory, United States

GPS Timing and Control System for the HAWC Experiment

A. U. Abeysekara, D. Edmunds, J. T. Linnemann, T. N. Ukwatta

Michigan State University, United States

MO6 Mini-orals 6

Thursday, June 14 14:35 Crystal Ballroom

Session Chair: TBA

Research of Long Distance Clock Distribution System

Y. Yang, K. Hanson, T. Meures

Interuniversity Insitute for High Energies (IIHE), Brussels, Belgium

Development of the Data Acquisition System of a Large TPC for the ILC

G. W. P. De Lentdecker, E. Verhagen, Y. Yang, *Universite Libre de Bruxelles, Belgium*; L. Jonsson,

B. Lundberg, U. Mjornmark, A. Oskarsson, L. Osterman, E. Stenlund, *Lund University, Sweden*

Real-Time Performance of Commercial Intel-Based VME Controllers for the CODA Data Acquisition System

B. J. Moffit, *Jefferson Lab, United States*

A Readout System Utilizing the APV25 ASIC for the Forward GEM Tracker in STAR

G. J. Visser¹, J. T. Anderson², B. Buck³, A. S. Kreps², T. Ljubicic⁴

¹Indiana University, United States; ²Argonne National Laboratory, United States; ³Massachusetts Institute of Technology, United States; ⁴Brookhaven National Laboratory, United States

A Comprehensive Zero-Copy Architecture for High Performance Distributed Data Acquisition over Advanced Network Technologies for the CMS Experiment

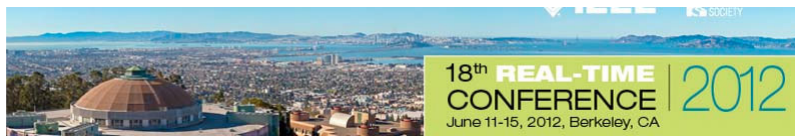
A. Petrucci¹, G. Bauer², U. Behrens³, J. Branson⁴, S. Bukowiec¹, O. Chaze¹, S. Cittolin⁵, J. A. Coarasa Perez¹, C. Deldicque¹, M. Dobson¹, A. Dupont¹, S. Erhan⁶, D. Gigi¹, F. Gleze¹, R. Gomez - Reino¹, C. Hartl¹, A. Holzner⁴, L. Masetti¹, F. Meijers¹, E. Meschi¹, R. Mommsen⁷, C. Nunez-Barranco-Fernandez¹, V. O'Dell⁷, L. Orsini¹, C. Paus², M. Pieri⁴, G. Polese¹, A. Racz¹, O. Raginel², H. Sakulin¹, M. Sani⁴, C. Schwick¹, A. C. Cristian Spataru¹, F. Stoeckli², K. Sumorok²

¹CERN, Switzerland; ²Massachusetts Institute of Technology, USA; ³DESY, Germany; ⁴University of California, San Diego, USA; ⁵Eidgenossische Technische Hochschule, Switzerland; ⁶University of California, Los Angeles, USA; ⁷FNAL, USA

Phase and Amplitude Drift Calibration of the RF Detectors in a MTCA.4 Based LLRF System

J. Piekarski¹, K. Czuba¹, M. Hoffmann², W. Jalmuzna³, F. Ludwig², H. Schlarb², C. Schmidt², B. Yang²

¹Institute of Electronic Systems, Poland; ²Deutsches Elektronen-Synchrotron, Germany; ³Technical University of Lodz, Poland



Implementation of Intelligent Data Acquisition Systems for Fusion Experiment Using EPICS and FlexRIO Technology

D. Sanz¹, M. Ruiz¹, R. Castro², J. Vega², J. M. Lopez¹, E. Barrera¹, N. Utzel³, P. Makijarvi³

¹Universidad Politecnica de Madrid, Spain; ²Asociacion EURATOM/CIEMAT, Spain; ³ITER Organizarion, France

A General Self-Organization Tree-Based Energy-Balance Routing Protocol for Wireless Sensor Network

Z. Han, J. Wu, J. Zhang, L. Liu, K. Tian, *University of Science and Technology of China, China, 230026*

Experiences with the MTCA.4 Solution for the EuXFEL Clock and Control System

E. Motuk, M. Postranecky, M. Warren, M. Wing

University College London, United Kingdom

Timing and Triggering System for the European XFEL Project - a Double Sized AMC Board

A. Hidvegi¹, P. Gessler², H. Kay³, K. Rehlich³, C. Bohm¹

¹Stockholm University, Sweden; ²European X-Ray Free Electron Laser Facility GmbH, Germany; ³Deutsches Elektronen-Synchrotron (DESY), Germany

Directive Multi-Channel Beta Probe for Detecting Small Tumors

S. J. Jeon, J. H. Park, K. S. Joo

Myongji University, South Korea

High-Precision Accelerator RF Control for the European XFEL

H. Schlarb¹, F. Ludwig¹, M. Hoffmann¹, T. Jezynski¹, J. Branlard¹, C. Schmidt¹, M. Grecki¹, V. Ayvazyan¹, S. Pfeiffer¹, K. Czuba², A. Piotrowski³, O. Hensler¹, W. Jalmuzna³, D. Makowski³, L. Butkoswki², W. Cichalewski³, I. Kudla¹, J. Piekarski², K. Przygoda³, I. Rutkowski², D. Sikora², J. Szewinski¹, W. Wierba¹, B. Yang¹, L. Zembala², S. B. Habib²

¹DESY, Germany; ²WUT, Polen; ³Uni of Lodz, Polen

Minimizing Dead Time of the Belle II Data Acquisition System with Pipelined Trigger Flow Control

M. Nakao¹, C. Lim², M. Friedl³, T. Uchida¹

¹KEK, High Energy Accelerator Research Organization, Japan; ²Yonsei University, Korea; ³HEPHY, Austrian Academy of Sciences, Austria

PS3 Poster Session 3

Thursday, June 14 15:55 Boiler Room

Session Chair: TBA

Readout Electronics and Data Acquisition of a Time of Flight Detector for Positron Emission Tomography

J. Y. Yeom, V. Spanoudaki, K. J. Hong, C. S. Levin

Stanford University, United States

A Prototype of Underground Muon Counters Triggered from the Pierre Auger Surface Detectors Built on Unified Altera Platform

Z. Szadkowski, *University of Lodz, Poland*

Design of the Trigger Interface and Distribution Board for CEBAF 12 GeV Upgrade

W. Gu, D. Abbott, C. Cuevas, G. Heyes, E. Jastrzembski, B. Moffit, B. Raydo, J. Wilson, H. Dong,

S. Kaneta, N. Nganga, C. Timmer, V. Gyurjyan

Jefferson Lab, United States

A Correlation Measurement System for Ghost Imaging Experiment

L. Chen^{1,2}, M. Zheng^{1,2}, L. Zhang^{1,2}, G. Jin^{1,2}

¹University of Science and Technology of China, China; ²State Key Laboratory of Particle Detection and Electronics, China

Design and Implementation of DAQ Readout System for Daya Bay Reactor Neutrino Experiment

X. Ji, F. Li, K. Zhu

Institute of High Energy Physics, Chinese Academy of Sciences, China



ATLAS IBL BOC Prototype Evaluation

N. Schroer, *ZITI - University of Heidelberg, Germany*

High-Speed Data Acquisition System of Microwave Reflectometry Based on LabVIEW for Long Pulse Operation

S. Li, Y. Chen, F. Wang, Y. Wang, W. Huang, X. Sun
Institute of Plasma Physics, CAS, China

Clock Distribution Board for the $4\pi\beta\text{-}\gamma$ Coincidence Counting System

H. Wang^{1,2}, K. Song^{1,2}, J. Yang^{1,2}, P. Cao^{1,2}, K. Zhang^{1,2}

¹*University of Science and Technology of China, China;* ²*the State Key Laboratory of Particle Detection and Electronics, China*

Implementation of High-Speed USB Interface in Data Acquisition System for KTX

W. Lv^{1,2}, K. Song^{1,2}, J. Yang^{1,2}, P. Cao^{1,2}, L. Dong^{1,2}

¹*University of Science and Technology of China, China;* ²*the State Key Laboratory of Particle Detection and Electronics, China*

An FPGA-Based Readout Module for the DAQ Subsystem of the DSSC Detector at the European XFEL

T. Gerlach, A. Kugel, *Heidelberg University, Germany*

Development of a High Resolution PXI Based Data Acquisition System for Electron Momentum Spectrometer

Y. Huang, S. Liu, J. Wang, X. Hu, C. Feng, Q. An
University of Science and Technology of China, China

A Fast Data Streaming System Using PCI Express for EAST Tokamak

F. Wang, S. Li, Y. Wang, X. Sun
Institute of Plasma Physics, Chinese Academy Sciences, China

A High Speed High Resolution Digital Platform for the $4\pi\beta\text{-}\gamma$ Coincidence Counting System

K. Zhang^{1,2}, K. Song^{1,2}, J. Yang^{1,2}, P. Cao^{1,2}, H. Wang^{1,2}

¹*University of Science and Technology of China, China;* ²*the State Key Laboratory of Particle Detection and Electronics, China*

The Readout Electronics of the Micromegas-Based Large Time Projection Chamber Prototype for the International Linear Collider

D. Calvet, D. Attie, D. Besin, P. Colas, R. Joannes, A. Le Coguie, S. Lhenoret, I. Mandjavidze, M. Riallot, W. Wang, E. Zonca
CEA-IRFU, France

Design of a Low-Noise Analog Signal Processing Circuit for CZT Detectors

B. Gan, T. Wei, W. Gao, D. Gao, *Northwestern Polytechnical University, China;* Y. Hu, *University of Strasbourg/CNRS, France*

An FPGA Based GEMROC ASIC Readout System

B. Mindur, W. Dabrowski, T. Fiutowski, P. Wiacek, A. Zielinska
AGH University of Science and Technology, Poland

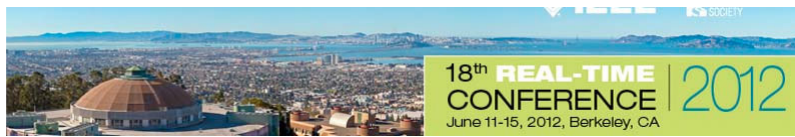
Design and Test of a High-Speed Flash ADC Mezzanine Card for High-Resolution and Timing Performance for Nuclear Structure Experiments

X. Egea Canet^{1,2}, E. Sanchis², V. Gonzalez², A. Gadea¹, J. M. Blasco², D. Barrientos^{1,2}, J. J. Valiente Dobon³, M. Tripon⁴, A. Boujrad⁴, C. Houarner⁴, M. Jastrzab⁵, G. de Angelis³, M. N. Erduran⁶, S. Erturk⁷, T. Huyuk¹, G. Jaworski^{8,9}, J. Nyberg¹⁰, M. Palacz⁹, G. de France⁴, A. di Nitto¹¹, A. Pipidis³, R. Tarnowski⁹, R. Wadsworth¹², A. Triossi³

¹*IFIC (Institut de fisica corpuscular), Spain;* ²*UV (Universitat de Valncia), Spain;* ³*INFN, Laboratori Nazionali di Legnaro, Italy;* ⁴*Grand Accelérateur National d'Ions Lourds, France;* ⁵*Niewodczanski Institute of nuclear physics, Polish Academy of Sciences, Poland;* ⁶*Istanbul Sabahattin Zaim university Istanbul, Turkey;* ⁷*Nigde Universitesi, Turkey;* ⁸*Warsaw university of technology, Poland;* ⁹*University of Warsaw, Poland;* ¹⁰*Uppsala University, Sweden;* ¹¹*INFN, Sezione di Napoli, Italy;* ¹²*University of York, United Kingdom*

Design of an Optical Uplink with 10Gbit/s Link Between PCIe and MicroTCA

H. Kleines, P. Wstner, A. Ackens, M. Drochner, P. Kmmmerling, S. van Waasen, M. Ramm
Forschungszentrum Jülich, Germany



A Data Acquisition Module for Long-Distance Reflective Ghost Imaging Experiment with Thermal Light

F. Wen^{1,2}, F. Li^{1,2}, Q. Wang^{1,2}, G. Jin^{1,2}

¹University of Science and Technology of China, China; ²State Key Laboratory of Particle Detection and Electronics, China

Upgrading the Backend of the Pipeline Readout System for Belle II

S. Y. Suzuki, T. Higuchi, M. Nakao, R. Itoh, Y. Igarashi

KEK, Japan

Development of an AMC Module MMC

P. Kaemmerling, M. Drochner, H. Kleines, S. van Waasen, M. Ramm, A. Ackens

Forschungszentrum Juelich, Germany

Minimizing Dead Time of the Belle II Data Acquisition System with Pipelined Trigger Flow Control

M. Nakao¹, C. Lim², M. Friedl³, T. Uchida¹

¹KEK, High Energy Accelerator Research Organization, Japan; ²Yonsei University, Korea; ³HEPHY, Austrian Academy of Sciences, Austria

Development of New Data Acquisition System at Super-Kamiokande for Nearby Supernova Bursts

T. Tomura¹, Y. Hayato¹, M. Ikeno², M. Nakahata¹, S. Nakayama¹, Y. Obayashi¹, K. Okumura¹,

M. Shiozawa¹, S. Y. Suzuki², T. Uchida², S. Yamada³, T. Yokozawa¹

¹University of Tokyo, Japan; ²High Energy Accelerator Research Organization (KEK), Japan; ³Tohoku University, Japan

Research of Long Distance Clock Distribution System

Y. Yang, K. Hanson, T. Meures

Interuniversity Institute for High Energies (IIHE), Brussels, Belgium

Development of the Data Acquisition System of a Large TPC for the ILC

G. W. P. De Lentdecker, E. Verhagen, Y. Yang, Universite Libre de Bruxelles, Belgium; L. Jonsson,

B. Lundberg, U. Mjornmark, A. Oskarsson, L. Osterman, E. Stenlund, Lund University, Sweden

Real-Time Performance of Commercial Intel-Based VME Controllers for the CODA Data Acquisition System

B. J. Moffit, Jefferson Lab, United States

A Readout System Utilizing the APV25 ASIC for the Forward GEM Tracker in STAR

G. J. Visser¹, J. T. Anderson², B. Buck³, A. S. Kreps², T. Ljubicic⁴

¹Indiana University, United States; ²Argonne National Laboratory, United States; ³Massachusetts Institute of Technology, United States; ⁴Brookhaven National Laboratory, United States

ATLAS TDAQ: Operation and Evolution

G. Avolio, University of California Irvine, USA; W. Vandelli, CERN, Switzerland

A Comprehensive Zero-Copy Architecture for High Performance Distributed Data Acquisition over Advanced Network Technologies for the CMS Experiment

A. Petrucci¹, G. Bauer², U. Behrens³, J. Branson⁴, S. Bukowiec¹, O. Chaze¹, S. Cittolin⁵, J. A. Coarasa Perez¹, C. Deldicque¹, M. Dobson¹, A. Dupont¹, S. Erhan⁶, D. Gigi¹, F. Glege¹, R. Gomez - Reino¹, C. Hartl¹, A. Holzner⁴, L. Masetti¹, F. Meijers¹, E. Meschi¹, R. Mommsen⁷, C. Nunez-Barranco-Fernandez¹, V. O'Dell⁷, L. Orsini¹, C. Paus², M. Pieri⁴, G. Polese¹, A. Racz¹, O. Raginel², H. Sakulin¹, M. Sani⁴, C. Schwick¹, A. C. Cristian Spataru¹, F. Stoeckli², K. Sumorok²

¹CERN, Switzerland; ²Massachusetts Institute of Technology, USA; ³DESY, Germany; ⁴University of California, San Diego, USA; ⁵Eidgenossische Technische Hochschule, Switzerland; ⁶University of California, Los Angeles, USA; ⁷FNAL, USA

A Novel Data Acquisition Scheme Based on a Low-Noise Front-End ASIC and a High-Speed ADC for CZT-Based Small-Animal PET Imaging

W. Gao, D. Gao, B. Gan, L. Wang, F. Xue, T. Wei, Northwestern Polytechnical University,

China; Y. Hu, UMR 7178 CNRS/UDS, France

Upgrade of the COMPASS DAQ to the FPGA Based

I. V. Konorov¹, D. Levit¹, S. Paul¹, M. Bodlak², V. Jary², J. Novy², A. Mann¹

¹Technical University of Munich, Germany; ²Czech Technical University in Prague, Czech Republic



Communication Architecture of DAQ-Middleware

Y. Nagasaka, *Hiroshima Institute of Technology, Japan*; H. Sendai, E. Inoue, *High Energy Accelerator Research Organization, Japan*; T. Koutoku, N. Ando, *The National Institute of Advanced Industrial Science and Technology, Japan*; S. Ajimura, *Osaka University, Japan*; M. Wada, *Bee Beans Technologies Co. Ltd., Japan*

Implementation of the Disruption Predictor APODIS in JET Real Time Network Using the MARTe Framework

J. M. Lopez¹, J. Vega², D. Alves³, S. Dormido-Canto⁴, A. Murari⁵, J. M. Ramirez⁴, R. Felton⁶, M. Ruiz¹, G. D. Arcas¹, and *JET-EFDA Contributors*⁷

¹*Universidad Politecnica de Madrid, Spain*; ²*Asociacion EURATOM CIEMAT para Fusion, Spain*; ³*Instituto de Plasmas e Fusao Nuclear. Instituto Superior Tecnico, Univ. Tecnica de, Portugal*; ⁴*Universidad de Educacion a Distancia, Spain*; ⁵*Consorzio RFX-Associazione EURATOM ENEA per la Fusione, Italy*; ⁶*EURATOM/CCFE Fusion Association, Culham Science Center OX14 3DB, United Kingdom*; ⁷*See Appendix of F. Romanelli et al Proc. 23rd IAEA Fusion Energy Conference 2010, Korea*

A Versatile High Speed Data Acquisition Module with Four 10G Ethernet Links

I. Sheviakov, M. Zimmer
Deutsches Elektronen-Synchrotron, Germany

Advanced Linux PCI Services (ALPS) for Rapid Prototyping of PCI-Based DAQ Electronics

S. A. Chilingaryan, M. Caselle, A. Kopmann, U. Stevanovic, M. Vogelgesang
Karlsruhe Institute of Technology, Germany

Implementation of Intelligent Data Acquisition Systems for Fusion Experiment Using EPICS and FlexRIO Technology

D. Sanz¹, M. Ruiz¹, R. Castro², J. Vega², J. M. Lopez¹, E. Barrera¹, N. Utzel³, P. Makijarvi³

¹*Universidad Politecnica de Madrid, Spain*; ²*Asociacion EURATOM/CIEMAT, Spain*; ³*ITER Organization, France*

DEAP-3600 Dark Matter Experiment Data Acquisition and Trigger System

A. J. Muir, *TRIUMF, Canada*

A 16-Channel 15 ps TDC Implemented in a 65 nm FPGA

L. Zhao^{1,2}, X. Hu^{1,2}, S. Liu^{1,2}, J. Wang^{1,2}, Q. An^{1,2}

¹*University of Science and Technology of China, China*; ²*Department of Modern Physics, University of Science and Technology of China, China*

Development of High Resolution TDC Implemented in Radiation Tolerant FPGAs for Aerospace Application

X. Qin^{1,2}, C. Feng^{1,2}, L. Zhao^{1,2}, D. Zhang^{1,2}, X. Hao¹, S. Liu^{1,2}, Q. An^{1,2}

¹*University of Science and Technology of China, China*; ²*State Key Laboratory of Technologies of Particle Detection & Electronics, China*

SEUs Tolerance in FPGAs Based Digital LLRF System for XFEL

M. K. Grecki, *DESY, Hamburg, Germany*

Maximum Likelihood Estimation and Non-Linear Least Squares Fitting with Levenberg-Marquardt Algorithm Implementation in FPGA Devices for High Resolution Hodoscopy

J. M. Blasco, E. Sanchis, V. Gonzalez, J. D. Martin, X. Egea, D. Barrientos, D. Granero
Universidad de Valencia, Spain

Multiple Register Synchronization with a High-Speed Serial Link Using the Aurora Protocol

D. Barrientos^{1,2,3}, V. Gonzalez³, M. Bellato², A. Gadea¹, D. Bazzacco², J. M. Blasco³, D. Bortolato², F. J. Egea^{1,3}, R. Isocrate², A. Pullia⁴, G. Rampazzo², E. Sanchis³, A. Triossi²

¹*Instituto de Fisica Corpuscular (CSIC-UV), Spain*; ²*Istituto de Fisica Nucleare (INFN), Sezione di Padova, Italy*; ³*Departamento Ingeniera Electronica, Universitat de Valencia, Spain*; ⁴*Istituto de Fisica Nucleare (INFN), Sezione di Milano, Italy*

Graphical User Interface for Serial Protocols Through a USB Link

D. Barrientos^{1,2,3}, V. Gonzalez³, M. Bellato², A. Gadea¹, D. Bazzacco², J. M. Blasco³, D. Bortolato², F. J. Egea^{1,3}, R. Isocrate², A. Pullia⁴, G. Rampazzo², E. Sanchis³, A. Triossi²

¹*Instituto de Fisica Corpuscular (CSIC-UV), Spain*; ²*Istituto de Fisica Nucleare (INFN), Sezione di Padova, Italy*; ³*Departamento Ingeniera Electronica, Universitat de Valencia, Spain*; ⁴*Istituto de Fisica Nucleare (INFN), Sezione di Milano, Italy*



SEU Effects on Power Consumption in Xilinx FPGAs

A. Aloisio^{1,2}, V. Bocci², G. Chiodi², R. Giordano^{1,2}, V. Izzo², L. Sterpone³, M. Violante³

¹University of Naples 'Federico II' and INFN, Italy; ²INFN, Italy; ³Politecnico di Torino, Italy

FERT1 FPGA and Electronics Applied to Realtime Systems 1

Thursday, June 14 17:15 Crystal Ballroom

Session Chair: TBA

Field-Programmable Gate Array (FPGA) Firmware for the Fermilab E906 (SeaQuest) Trigger

J. Wu, *FNAL, IL*; S.-H. Shiu, *Institute of Physics, Academia Sinica, Taiwan*

A Compact Dosimeter for Space Applications

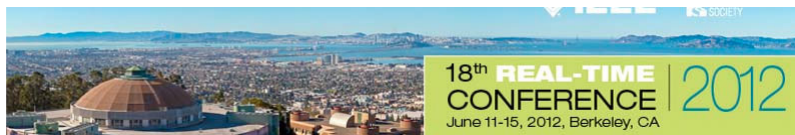
C. Deneau¹, J.-R. Vaill^{1,2}, F. Bezerra³, E. Lorfevre³, R. Ecoffet³, L. Dusseau¹

¹Universite Montpellier 2, France; ²Universite de Nimes, France; ³Centre National d'Etudes Spatiales, France

A Stepped-Up Tree Encoder for 10-ps Wave Union TDC

X. Hu^{1,2}, L. Zhao^{1,2}, S. Liu^{1,2}, J. Wang^{1,2}, Q. An^{1,2}

¹University of Science and Technology of China, China; ²Department of Modern Physics, University of Science and Technology of China, China



Friday

FERT2 FPGA and Electronics Applied to Realtime Systems 2

Friday, June 15 08:30 Crystal Ballroom

Session Chair: TBA

(invited) Status and Perspectives of Fast Waveform Digitizers

R. Paoletti, *University of Siena and INFN Pisa, Italy*

Quantization Analysis of the Infrared Interferometer of the TJ-II for Its Optimized FPGA-Based Implementation

L. Esteban¹, J. A. Lopez², E. Sedano², M. Sanchez¹

¹Centro de Investigaciones Energéticas Medioambientales y Tecnológicas, Spain; ²Universidad Politécnica de Madrid, Spain

Time Interval Analyzer with FPGA-Based TDC for Free Space Quantum Key Distribution: Principle and Validation with Prototype Setup

Q. Shen¹, S. Liao¹, S. Liu¹, J. Wang¹, W. Liu², C. Peng¹, Q. An¹

¹University of Science and Technology of China, China; ²Ningbo University, China

Real-Time Clustering for Pixel Detectors: the Dce3 ASIC for the PXD Detector in the Belle II Experiment @KEK

A. Wassatsch, R. Richter

Max-Planck-Institut fuer Physik, Germany

Research of real-time time interval measurement and non-linear phase adjustment of photon pairs in entanglement swapping experiment

Z. Sang^{1,2}, X. Jiang^{2,3}, F. Li^{1,2}, H. Zhang^{2,3}, T. Zhao^{2,3}, G. Jin^{1,2}

¹State Key Laboratory of Particle Detection and Electronics, China; ²University of Science and Technology of China, China; ³Hefei National Laboratory for Physical Science at Microscale, China

A Silicon Diode Based Detector for Radiation Measurement in High Altitude Natural Environment

D. Pantel¹, J.-R. Vaillat¹, F. Wrobel¹, L. Dillillo², J.-M. Galliere², J.-L. Autran³, P. Cocquerez⁴,

P. Chadoutaud⁴, F. Saigne¹

¹Universite Montpellier 2, France; ²LIRMM, France; ³IM2NP, France; ⁴CNES, France

PS4 Poster Session 4

Friday, June 15 11:00 Crystal Ballroom

Session Chair: TBA

A General Self-Organization Tree-Based Energy-Balance Routing Protocol for Wireless Sensor Network

Z. Han, J. Wu, J. Zhang, L. Liu, K. Tian

University of Science and Technology of China, China, 230026

Real Time Control System of Active Reflector of FAST

J. Wang^{1,2}, X.-C. Deng^{1,2}, W.-Q. Wu^{1,2}, H.-T. Shen³, L.-C. Zhu³, M.-C. Luo^{1,2}, P.-Y. Tang^{1,2}, J.-J. Liu^{1,2}, G. Jin^{1,2}

¹Univ. of Sci. & Tech. of China, China; ²State Key Laboratory of Technologies of Particle Detection and Electronics, china; ³National Astronomical Observatories, china

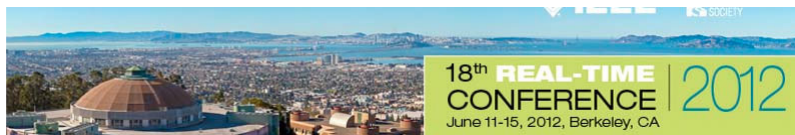
IPMI Test Software for MicroTCA Developments

M. Drochner, P. Kaemmerling, H. Kleines, S. v. Waasen

FZJ/ZEL, Germany

The Research and Design of the Data Acquisition System and the Control System of KTX

J. An, K. Song, P. Cao, J. Yang



the State Key Laboratory of Particle Detection and Electronics, China

Conception Design and Key Issues on Remote Participation in EAST Tokamak

X. Sun, F. Wang, S. Li, Y. Wang

Institute of Plasma Physics, Chinese Academy of Sciences, China

A Prototype GUI for the Multi-Channel Sensor Data Acquisition and Monitoring System of KTX

L. Dong^{1,2}, K. Song^{1,2}, J. Yang^{1,2}, P. Cao^{1,2}, D. Mao^{1,2}, W. Lv^{1,2}

¹University of Science and Technology of China, China; ²State Key Laboratory of Particle Detection and Electronics, China

Axisymmetric Magnetic Control in ITER

L. Zabeo¹, G. Ambrosino², M. Cavinato³, Y. Gribov¹, D. Humphreys⁴, J. A. Snipes¹, M. Walker⁴, A. Kavin⁵, V. Lukash⁶, G. Vayakis¹

¹ITER Organization, France; ²CREATE/ENEA/Euratom Association, Universita' di Napoli Federico II, Italy; ³Fusion for Energy (F4E), Spain; ⁴General Atomics, USA; ⁵D.V.Efremov Scientific Research Institute, Russia; ⁶Kurchatov Institute, Russia

Present Status of the ITER Real-Time Plasma Control System Development

A. Winter, P. Makijarvi, S. Simrock, J. Snipes, A. Wallander, L. Zabeo

ITER Organization, France

Experiences with the MTCA.4 Solution for the EuXFEL Clock and Control System

E. Motuk, M. Postranecky, M. Warren, M. Wing

University College London, United Kingdom

New strategy for the control of low frequency large band mechanical suspensions and inertial platforms

F. Barone^{1,2}, F. Acernese^{1,2}, R. De Rosa^{3,2}, G. Giordano¹, R. Romano^{1,2}

¹Universita' di Salerno, Italy; ²Istituto Nazionale di Fisica Nucleare, Italy; ³Universita' di Napoli Federico II, Italy

Superconducting Cavities Automatic Loaded Quality Factor Control at FLASH

W. Cichalewski, *Technical University of Lodz, Poland*; J. Branlard, H. Schlarb, N. Walker, *Deutsches Elektronen Synchrotron, Germany*; J. Carwardine, *Argonne National Laboratory, USA*

Timing and Triggering System for the European XFEL Project - a Double Sized AMC Board

A. Hidvegi¹, P. Gessler², H. Kay³, K. Rehlich³, C. Bohm¹

¹Stockholm University, Sweden; ²European X-Ray Free Electron Laser Facility GmbH, Germany; ³Deutsches Elektronen-Synchrotron (DESY), Germany

Online Software Time Calibration for a Continuous Air Shower Array

S. Mastroianni, *INFN, Italy*; M. Iacovacci, *Universit, Italy*

Secure and Reliable Remote Access for the European XFEL Control System

C. C. W. Robson, C. Bohm, *Stockholms universitet, Sweden*; K. Rehlich, R. Kammering, *Deutsches Elektronen-Synchrotron, Germany*

Directive Multi-Channel Beta Probe for Detecting Small Tumors

S. J. Jeon, J. H. Park, K. S. Joo

Myongji University, South Korea

MicroTCA for the European XFEL: a Hardware and Software Report

K. Rehlich, *DESY, Germany*

Architecture and Operation of the Control System for ALICE Detector at CERN

P. Chochula, *CERN, Switzerland*

High-Performance Scalable Information Service for the ATLAS Experiment.

S. Kolos, *University of California Irvine, USA*

Recent Developments in Control Software for Optical Synchronization Applications at DESY

P. Prędk, T. Kozak, A. Napieralski

Technical University of Lodz, Poland

The New Generation of the LHC Accelerator Radiation Monitoring System

A. Masi, M. Brugger, M. Donze', G. Spiezia, P. Peronnard

CERN, Switzerland



High-Precision Accelerator RF Control for the European XFEL

H. Schlarb¹, F. Ludwig¹, M. Hoffmann¹, T. Jezynski¹, J. Branlard¹, C. Schmidt¹, M. Grecki¹, V. Ayvazyan¹, S. Pfeiffer¹, K. Czuba², A. Piotrowski³, O. Hensler¹, W. Jalmuzna³, D. Makowski³, L. Butkoswki², W. Cichalewski³, I. Kudla¹, J. Piekarski², K. Przygoda³, I. Rutkowski², D. Sikora², J. Szewinski¹, W. Wierba¹, B. Yang¹, L. Zembala², S. B. Habib²

¹DESY, Germany; ²WUT, Polen; ³Uni of Lodz, Polen

FERT3 FPGA and Electronics Applied to Realtime Systems 3

Friday, June 15 11:30 Crystal Ballroom

Session Chair: TBA

Hardware Timebase Calibration in the Multi-GSa/s LABRADOR-4 ASIC

G. S. Varner, M. Z. Andrew, Z. Cao, K. A. Nishimura, P. W. Gorham

Hawaii Univ., United States

128 Channels of Multi-GSa/s Waveform Sampling and Digitization in an 800 cm³ Package

M. Z. Andrew, C. N. Lim, K. A. Nishimura, L. J. Ridley, G. S. Varner

University of Hawaii, United States

A Low-Resolution, GSa/s Streaming Digitizer for a Correlation-Based Trigger System

K. Nishimura¹, M. Andrew¹, Z. Cao¹, M. Cooney¹, P. Gorham¹, L. Macchiarulo¹, L. Ritter¹, A. Romero-Wolf², G. Varner¹

¹University of Hawaii at Manoa, United States; ²Jet Propulsion Laboratory, United States

Closing Session

Friday, June 15 12:50 Crystal Ballroom

Session Chair: Sergio Zimmermann, LBNL, United States

RT2014

M. Nomachi, *Osaka University, Japan*

Closing Talk

S. Zimmermann, *LBNL, USA*

