A digital base-band RF Control System

M. Konrad, U. Bonnes, C. Burandt, R. Eichhorn, J. Enders, N. Pietralla

MOMMU012
Project Goal

- Replace 20 years old analog system
- Improve accuracy
- Increase reliability
- Provide better diagnostics
- Use same hardware for different control algorithms

⇒ FPGA-based system
Features

• Hardware developed in-house
• Self-developed soft CPU
  • Executes control algorithm
  • Allows fast modification of control algorithm
  • All intermediary results available for diagnostics
• Standard PC
  • Slow control via EPICS IOC
  • Analyze soft CPU data stream
    • Software oscilloscope
    • Software spectrum-analyzer
Conclusion

• FPGA-based system replaced analog system
• Accuracy meets specifications \((8\cdot10^{-5}\text{ rms}, 0.7^\circ\text{ rms})\)
• Real-time diagnostics available

Visit me at my poster MOMMU012

Thank you for your attention