

A digital base-band RF Control System

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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 ($8 \cdot 10^{-5}$ rms, 0.7° rms)
- Real-time diagnostics available

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Thank you for your attention