XSLOTS
Slot Machine Controller

ELEC 423
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Description of Project

- **Slot-Machine controller ASIC**
- **System Flow**
  - User Inputs Credits (10)
  - Reels Spin (Lights Flash)
  - Reels Stop, Result is Assessed
  - Winnings are paid
  - Jackpot is incremented or reset appropriately
Full Plot of Chip
Functional Testing

- Success! All chips work
- 6 Test Vectors on Omnilab
- Agreement with previous results
- Able to run at max. Omnilab frequency
- Control
- RNG
- Jackpot and Payout PLA
Speed Testing

- Designed for Speed
- Standard Inverter
  - L 20\(\lambda\), W 2\(\lambda\) (N)
  - L 32\(\lambda\), W 2\(\lambda\) (P)
- 0.1 ns rise/fall
- Fall Semester Speed Estimate: 40-60 MHz
Tektronix Output
Speed Testing (Continued)

- Omnilab tested at max speed successfully
- Tektronix Testing:
  - 8ns per event (32ns per clock period)
  - 31.25 MHz
  - Full Functionality of Outputs
- Removal of non-overlap periods
Demonstration

- 21 LEDs, 3 Octal Buffers, 4 Switches
- 2 Phase Clocking
  - 481 Hz Astable Multivibrator
  - No Non-Overlap Period
- Slow Clock for LED flasher
  - Astable Multivibrator
  - Variable Speed (1-10Hz usable range)
Conclusion

- Functional Test…Success
- Speed Test…Success
- Visual Output…Success

Questions?