Multichannel Design in Altium Designer

Rainer Beerhalter, bgmbh medien und datenbanken
@ Altium Live, Munich, Germany
Motivation

A fool with a tool is still a fool!

Thomas Rösch, a friend, 1989
Agenda

• short speaker introduction
• examples from presenter’s workbench
• what is Multichannel Design?
• Live presentation of a simple Multichannel example
• Summary
• Q&A session
Who am I?

• Rainer Beerhalter, Dipl.-Phys.
• Founder and owner of BGMBH medien und datenbanken, a Germany based electronic design service company, in business since 1995
• Started electronic design in 1983 age 13: Commodore PET and C64
• I love electronics, I love challenges: since 1996 in LED display design for several companies
• System design first
What my team does:

• All PCBs designed with Altium Designer 18
• Resolution 5248 x 512 Pixel (20.5x2m)
• BOM: > 3 Mio.
Examples from my workbench

Simple, 2 channels

Complex, 16 channels
What is “Multichannel Design”?

• Mission: Design reuse
• AD approach: reuse of schematic sheets
• Requires hierarchical design, i.e. function groups containing other function groups.
• More replication -> more benefit
When using “Multichannel Design“?

Recall our mission: Design re-use

Minimum prerequisites:

• You need something to replicate / re-use
• Replicate structures not parts
• Think before doing -> systematic design
• Invest time, called learning curve
• Clarify your understanding of hierarchy, rooms, classes and designators
Live presentation using AD19 to create a 4-channel SFP interface PCB

All schematics and PCBs presented available for download from:
Baking a Multichannel Design

- Think
- Learn
- Structure your design

- Channels
- Rooms
- Classes
- Annotation

- Use buses
- Use harnesses
- Use short names
- Use board level annotation

- Boost design speed
- Earn money
- Reduce errors
- Increase SCH readability
Your space

• Think

• Learn

Room for your participation