Kirchhoff-Institut
fÄr Physik

ATLAS Level-1 Calorimeter Trigger

Joint Meeting @ RAL, Nov.2001

Universität Heidelberg

Pre-Processor (System Issues)

- The PPModule status
- The AnIn daughterboard, TCM adapter
- LVDS tests, LVDS backplate
- Material and Misc.

Paul HANKE, KIP Heidelberg

The PPModule

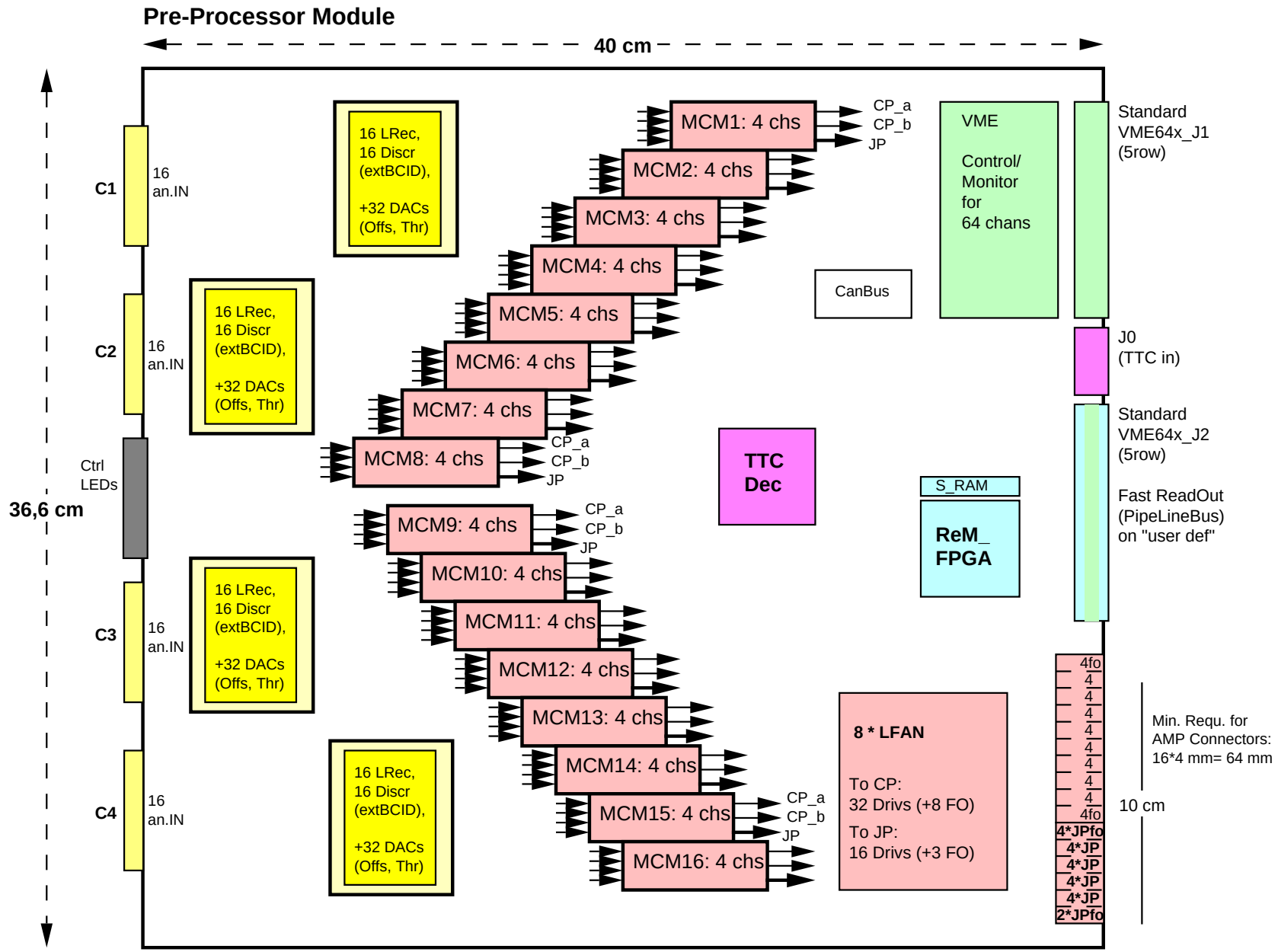
- Schematics still "growing" (KS, PS)

  - Commercial parts in libs (SubD37, cPCIs, VMEs)
  - AnIn, MCM, TTCrx_dPCB "footprint" in libs
  - LVDS daughterboard to be defined (see "LFan" later)

  - VME connected
  - work now on connectivity from front-panel through ... to cPCI
  - keep ReM_FPGA on 1.27mm pitch BGA(560 pins) for PCB manuf.

- Analog input signals (see H.Stenzel's talk for data)

- K.Penno works now on Video (see KP's talk)


Pre-Processor Module
40 cm
36,6 cm
C1
16 an.IN
C2
16 an.IN
Ctrl LEDs
C3
16 an.IN
C4
16 an.IN
16 LRec, 16 Discr (extBCID), +32 DACs (Offs, Thr)
16 LRec, 16 Discr (extBCID), +32 DACs (Offs, Thr)
16 LRec, 16 Discr (extBCID), +32 DACs (Offs, Thr)
16 LRec, 16 Discr (extBCID), +32 DACs (Offs, Thr)
MCM1: 4 chs
MCM2: 4 chs
MCM3: 4 chs
MCM4: 4 chs
MCM5: 4 chs
MCM6: 4 chs
MCM7: 4 chs
MCM8: 4 chs
MCM9: 4 chs
MCM10: 4 chs
MCM11: 4 chs
MCM12: 4 chs
MCM13: 4 chs
MCM14: 4 chs
MCM15: 4 chs
MCM16: 4 chs
CP_a
CP_b
JP
CanBus
VME
Control/ Monitor for 64 chans
TTC Dec
S_RAM
ReM_ FPGA
8 * LFAN
To CP:
32 Drivs (+8 FO)
To JP:
16 Drivs (+3 FO)
Standard VME64x_J1 (5row)
J0 (TTC in)
Standard VME64x_J2 (5row)
Fast ReadOut (PipeLineBus) on "user def"
4fo
4
4
4
4
4
4
4
4
4fo
4*JPfo
4*JP
4*JP
4*JP
4*JP
2*JPfo
Min. Requ. for AMP Connectors: 16*4 mm= 64 mm
10 cm

The AnIn daughterboard (PCB: 75*75 mm**2)

- PCB with "decision for CMC connectors" included, out for manufacture
("last" version before JK's retirement)
    - 6 layers
    - more pins for better "Xtalk" shielding
    - PowerSupply-Input: +5V dig. separate from +5V analog
    - Comparator with "hysteresis"

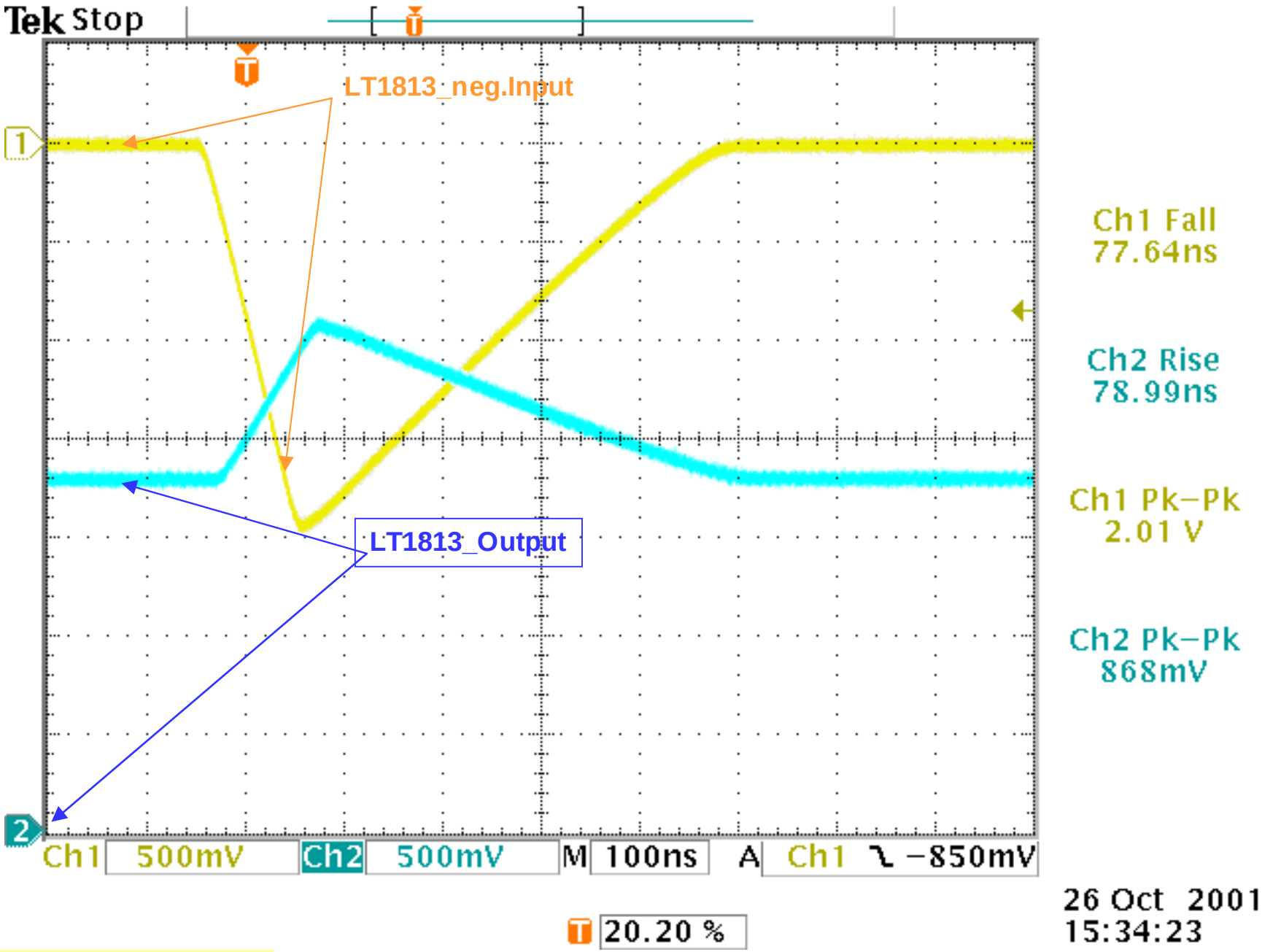
    - insert feed-back "capacitor"-pads /channel to FADC;
    test with MCM (see WH)

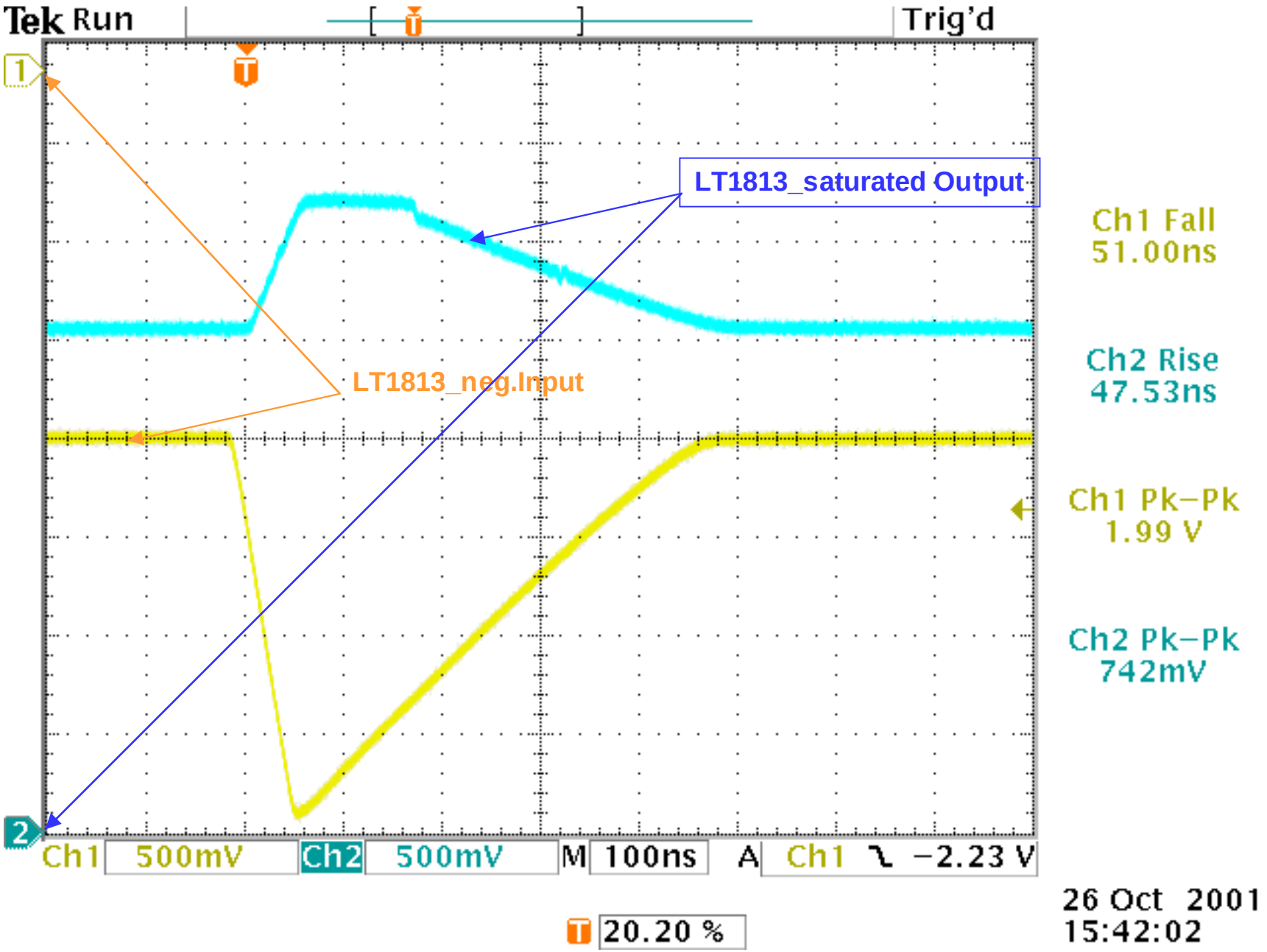
    - LT1813 Oscillation-tests: to be done by us !?! (bench-test)

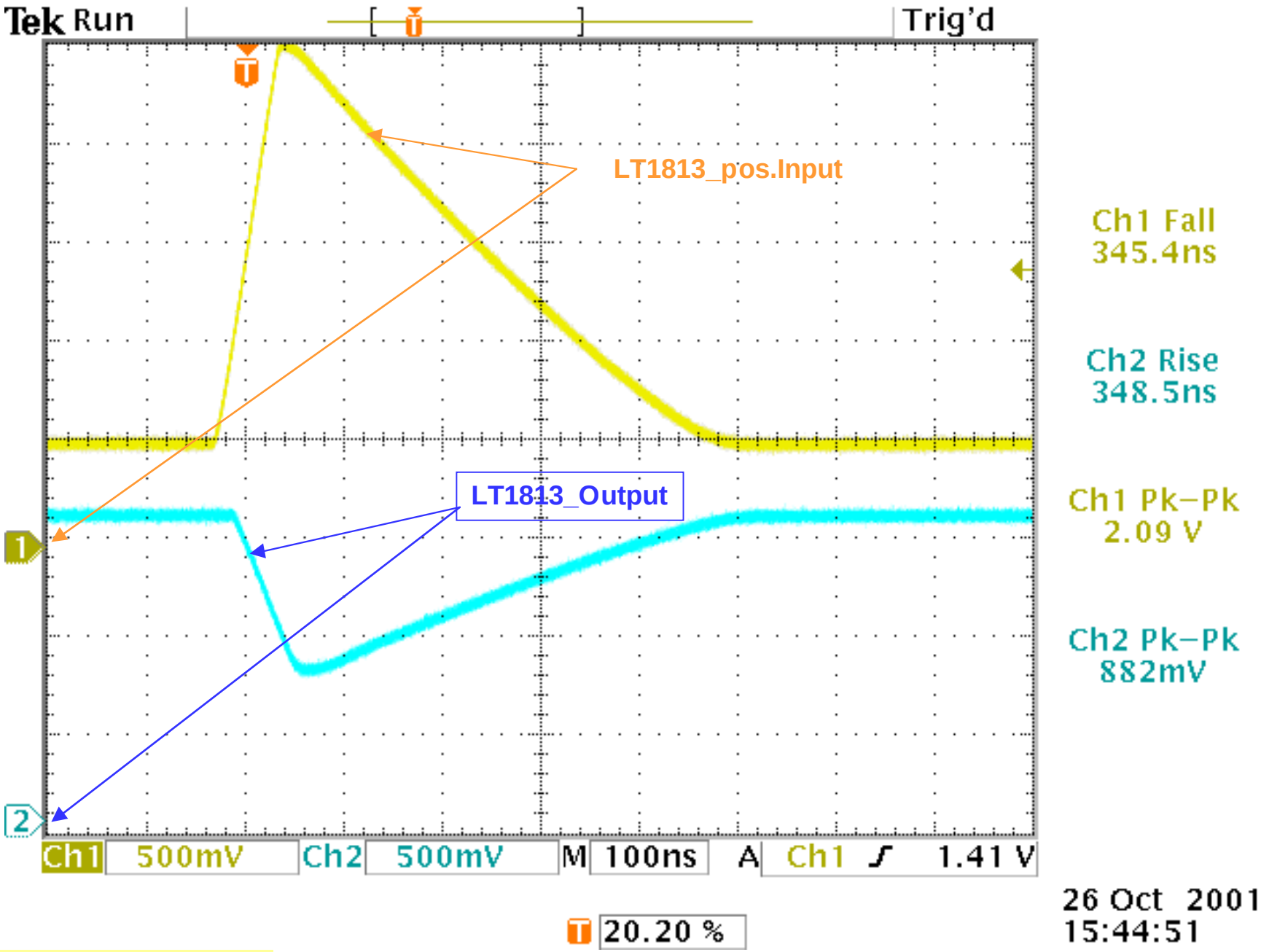
--->>> see first results (following 4):: NO Oscillation, "Clean" Saturation

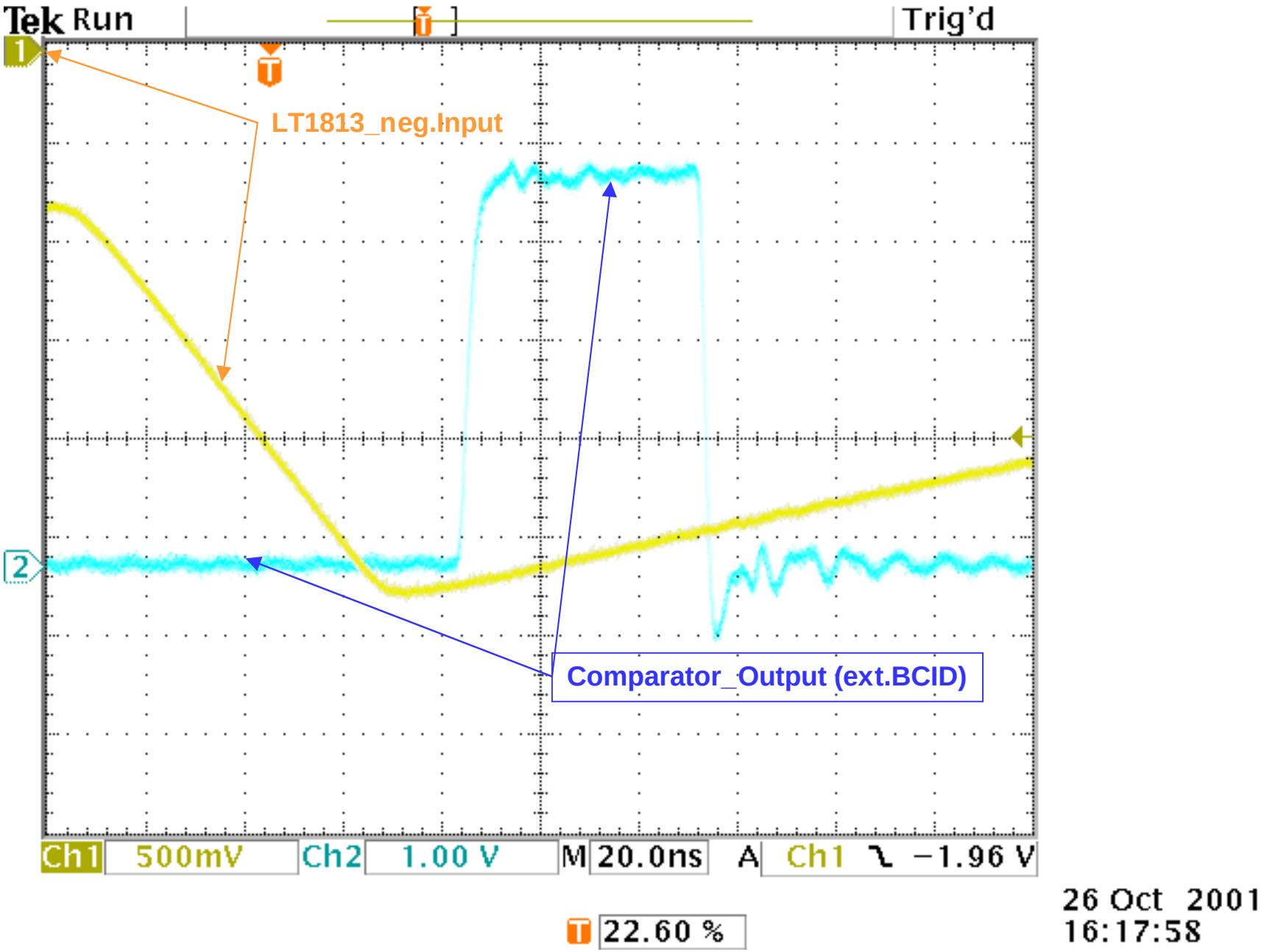
The TCM-adapter for PPr

- schematics started (EU), ca. 50% done, for layouting the "physical" motherboard would be useful (connector placing etc.)


Tek Stop
LT1813_neg.Input
LT1813_Output
Ch1 Fall
77.64ns
Ch2 Rise
78.99ns
Ch1 Pk-Pk
2.01 V
Ch2 Pk-Pk
868mV
Ch1 500mV
Ch2 500mV
M 100ns
A Ch1 -850mV
20.20 %
26 Oct 2001
15:34:23


Tek Run
Trig'd
LT1813_saturated Output
LT1813_neg.Input
Ch1 Fall
51.00ns
Ch2 Rise
47.53ns
Ch1 Pk-Pk
1.99 V
Ch2 Pk-Pk
742mV
Ch1 500mV
Ch2 500mV
M 100ns
A Ch1 -2.23 V
20.20 %
26 Oct 2001
15:42:02


Tek Run
Trig'd
LT1813_pos.Input
LT1813_Output
Ch1 Fall
345.4ns
Ch2 Rise
348.5ns
Ch1 Pk-Pk
2.09 V
Ch2 Pk-Pk
882mV
Ch1 500mV Ch2 500mV M 100ns A Ch1 1.41 V
20.20 %
26 Oct 2001
15:44:51


Tek Run
Trig'd
LT1813_neg.Input
Comparator_Output (ext.BCID)
Ch1 500mV
Ch2 1.00 V
M 20.0ns
A Ch1 ↘ −1.96 V
22.60 %
26 Oct 2001
16:17:58

LVDS tests, LVDS backplate

• LVDS test PCB (CMC board for mod.TestVME):
Layout nearly ready for manufacture,
late -> highest priority ->

- test 1021 @ "40 MHz+epsilon" (LHC clock @ 40.8 MHz)
- test XCV50E as "LFan substitute"

• LVDS serializer implementation (meanwhile clarified)

- 60 MHz (1023) is "footprint" compatible with 40 Mhz (1021)
  i.e. present MCM layout is OK !
- "dies" are available acc. to distributor !

• LVDS crate-backplate

- commercial solution from ELMA-Trenew:
  8 PPM--slots (3U) for LVDS throughput (B22, B25) with cable-shrouds for AMP-cables

Material and Misc.

- Purchases for the full PPr project (orders placed):
  - front-panel connectors (SubD37)
  - VME connectors for PPM boards (J1, J2 , J0-cPCI)
  - cPCI connectors on PPM for LVDS output (B22, B25)
  - "Mezzanine" connectors for AnIn, LVDS "LFan"
  - -->> ELMA-Trenew: 24 (*8slots)

••• "Forget-me-not"s
- Cabling and Tile-Receivers ? (W.Cleland @HD, Nov.26/27)
- ASSO
- Schedules (PRRs ?)
- Concept-HDL ? Transport of former designs ?
- ROD as on mod.TestVME (real ROD as "part of PPM" later)
- FTP to upload talks for next meets