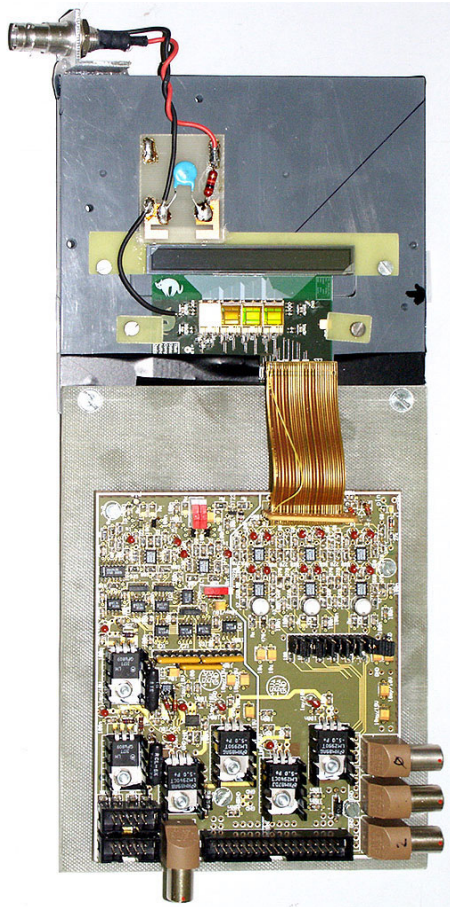


KEK  
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# APVDAQ System (update)

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## Outline

- Introduction
- Features
- APVDAQ Block Diagram
- Inventory
- Schedule
- Cost Estimate

Web <http://belle.hephy.at>

## Introduction

Intention Compact APV25 readout system (with single PC) for test purposes

Present 1 system exists in Vienna (several VME modules + front-end repeater)

Future More systems needed for

- (a) General tests, prototype evaluation, beam tests etc
- (b) Production testing

Clone of existing setup could satisfy (a)

Additional effort needed for (b)

Objects to test Hybrid, detector module and possibly final repeater

Conclusion In our opinion, we should aim for (b) even though it needs more time

In the meantime, prototype tests continued with existing setup

## Features

**Core**

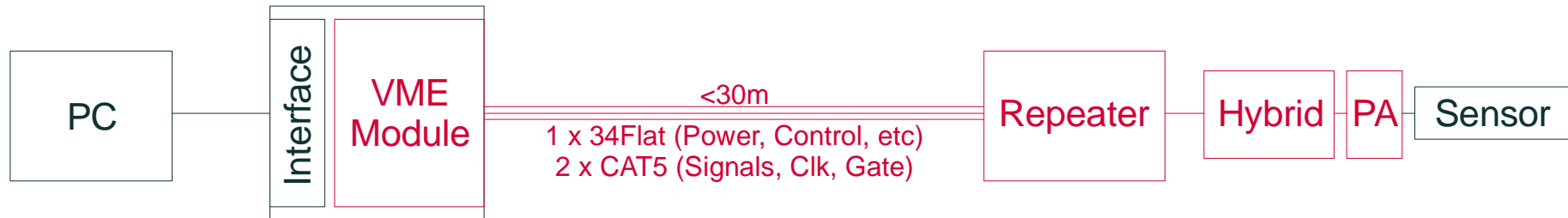
- Single 6U VME board with sequencer logic, ADC memory/readout, I2C etc
- Connects to 2 x 4 APVs via a pair of front-end repeater boards
- Several VME modules can be cascaded (via VME backplane) to common Clk/Trg for parallel readout (eg beam test)
- Additional functionality such as current monitoring intended for production testing

**Repeater**

- Step 1: hybrid or single sided detector readout (DC coupled) – like the existing one
- Step 2 (later): advanced repeater with level translation (power, Clk/Trg, I2C, analog output) for double sided detector readout
- Basic concept: VME board needs no change for step 2, all translation is packed into the repeater



## APVDAQ Block Diagram



### Red Parts

Will be supplied by HEPHY

VME, Repeater

Only old test system exists so far

Schematics of APVDAQ system to be built: <http://belle.hephy.at/>

Available:

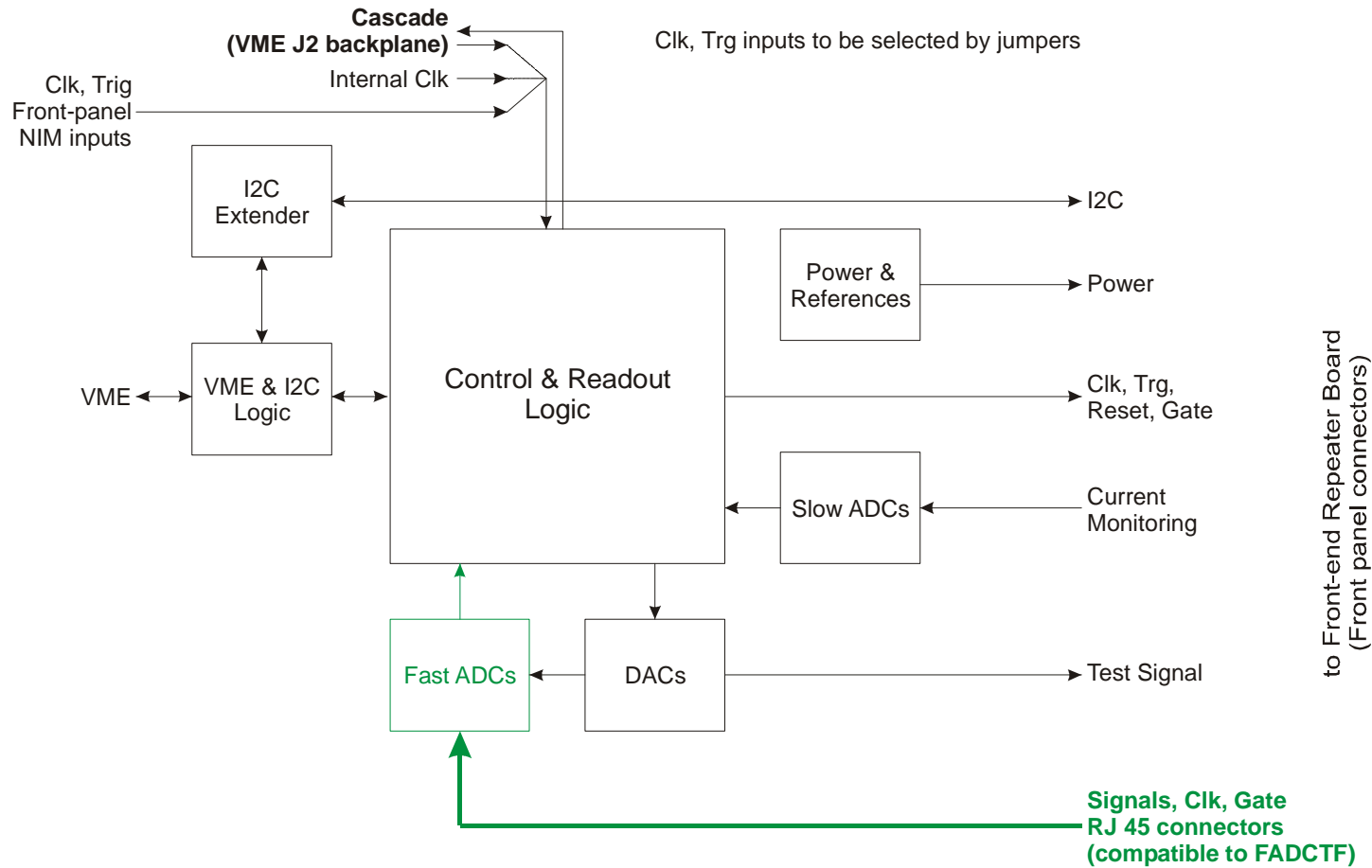
Hybrid

[http://e2.hephy.at/ELEK2/ARCHIV/CMS/APV25S1\\_V2/apv25s1\\_v2.html](http://e2.hephy.at/ELEK2/ARCHIV/CMS/APV25S1_V2/apv25s1_v2.html)

Pitch adapter

<http://belle.hephy.at/>

## APVDAQ VME Module Block Diagram



Hardware  Using existing daughter boards (Altera FPGA, ADCs)









## Inventory

	@ KEK	@ HEPHY Vienna
UV_triplet	9 type A, 7 type B	1 type A, 1 type B would like 2 more of type B
Pitch adapter	10	10
APV25	many	2 would like $\geq 20$
APV25 hybrid	0	>20

### Requests

Are meant to build few APVDAQ test systems

## **Schedule**

- Aug 2004  Beam test with existing Vienna setup and UV triplet sensor (see next talk)
- Nov 2004  Detailed schematics of APVDAQ VME module and DC repeater: done  
now Discussion about additional features/changes and future scenarios
- ~Mar 2004  Prototype system assembly, FPGA programming
- ~April 2004  Testing, software development
- ~May 2005  Delivery to KEK
- ≥May 2005  Delivery to TITECH and other users (any requests?)



## Cost Estimate

### Shopping List

Component	Supplier	¥
APVDAQ VME module	HEPHY	~300k
Repeater board	HEPHY	~100k
APV25 hybrid	HEPHY	~50k
PC	any	~200k
VME-PCI8015 interface *	National Instruments	489k
0373.3195 VME Mini Crate	Wiener	403k
Total		~1.5M

\* or cheaper alternatives

Full APVDAQ setup costs approximately 百五十万円