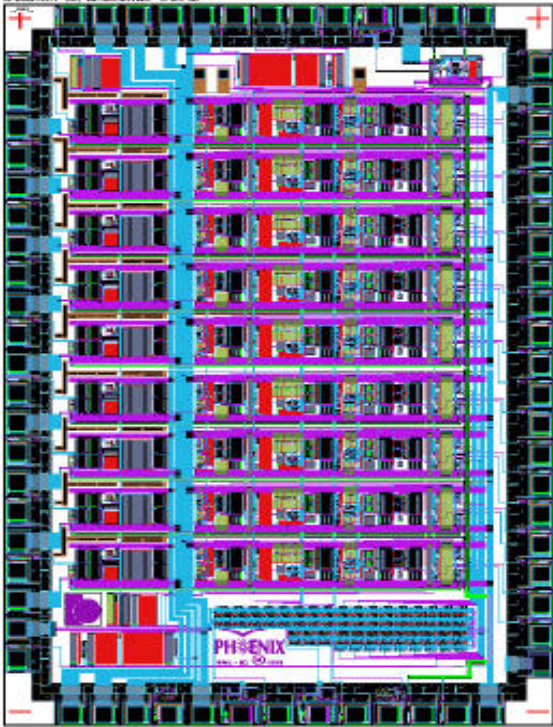
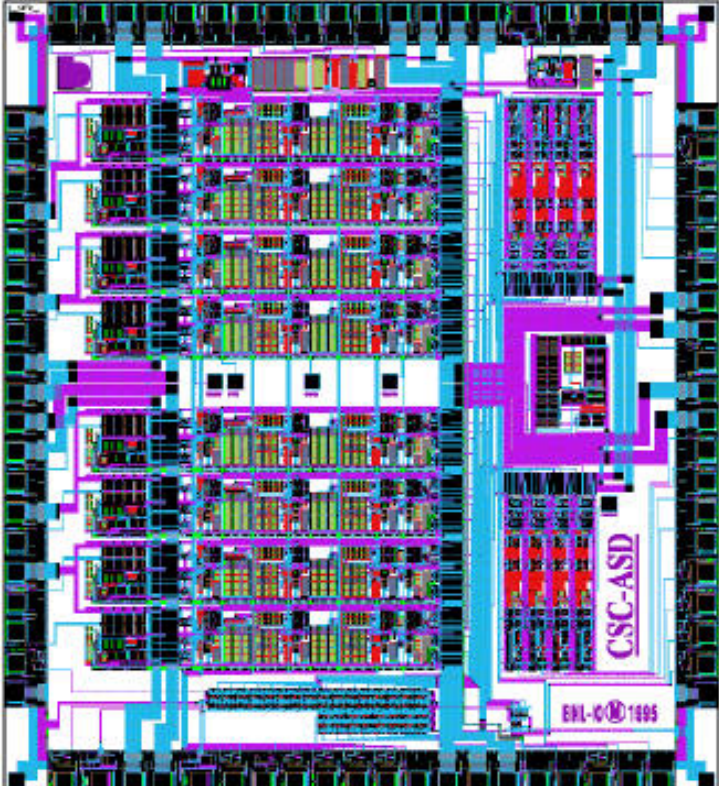


NAME	IC31
LAYOUT (20:1 SCALE)	
EXPERIMENT	PHENIX
SUB-DETECTOR	TIME EXPANSION CHAMBER TRACKER (TEC)
C <sub>DET</sub> RANGE	10 - 40 PF
CIRCUIT	CALIBRATION, PREAMP, DUAL-GAIN SHAPER, TAIL CANCELLATION
NO. CHANNELS	8 DATA + 1 COMMON-MODE SENSE
CHIP SIZE	3.35MM X 4.90MM
PACKAGE	68-PIN CERAMIC J-LEADED CHIP CARRIER
GAIN	LOW GAIN OUTPUT: 2 - 6 MV/FC, PROGRAMMABLE IN 8 STEPS HIGH GAIN OUTPUT: 9 - 31 MV/FC, "
PULSE SHAPE	UNIPOLAR SEMIGAUSSIAN, 65 - 95 NSEC PEAKING TIME, PROGRAMMABLE IN 4 STEPS, ION TAIL CANCELLATION
SIGNAL	1FC - 1PC
NOISE	1500 ELECTRONS R.M.S.
POWER	40 MW/CHANNEL
COMMENT	1ST LOT YIELD 321/324 CHANNELS; SIGMA(GAIN) ~ 2.2%



NAME	IC34
LAYOUT (20:1 SCALE)	
EXPERIMENT	ATLAS
SUB-DETECTOR	CATHODE STRIP CHAMBER (MUON ENDCAP)
$C_{DET}$ RANGE	40 - 150 PF
CIRCUIT	CALIBRATION, AMPLITUDE (PREAMP/SHAPER, TRACK+HOLD, MUX), TIMING(CONSTANT FRACTION DISCRIMINATOR)
NO. CHANNELS	8
CHIP SIZE	4.75MM X 5.29MM
PACKAGE	84-PIN CERAMIC J-LEADED CHIP CARRIER
GAIN	5 - 20 MV/FC, PROGRAMMABLE IN 4 STEPS
PULSE SHAPE	BIPOLAR SEMIGAUSSIAN WITH 130 - 550 NSEC PEAKING TIME, PROGRAMMABLE IN 4 STEPS
SIGNAL	TO 250 FC
NOISE	1800 ELECTRONS R.M.S. (WITH FASTEST SHAPING, $C_{DET}$ = 65 PF)
POWER	70 MW/CHANNEL
COMMENT	FACILITATES DATA-DRIVEN READOUT ARCHITECTURE (NO ANALOG PIPE-LINE)

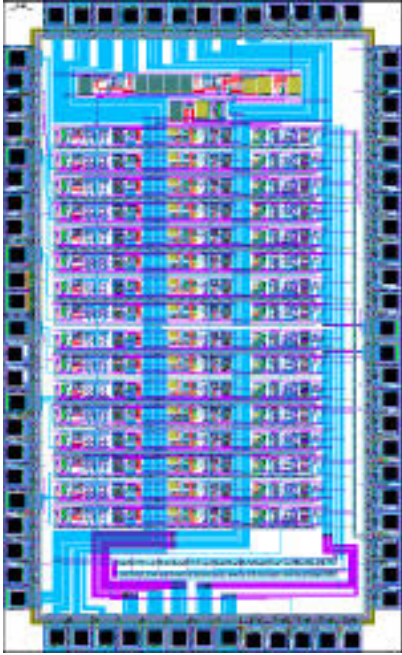
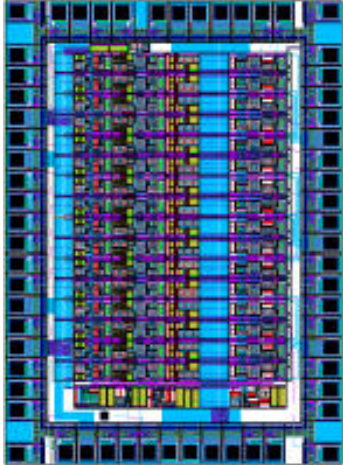
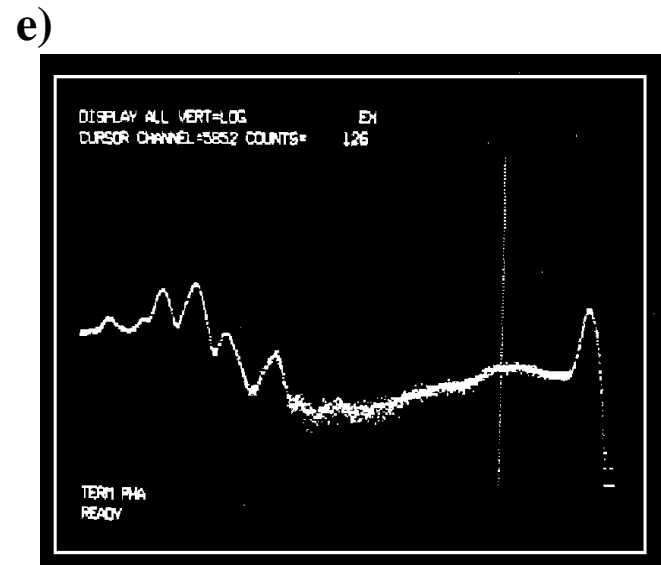
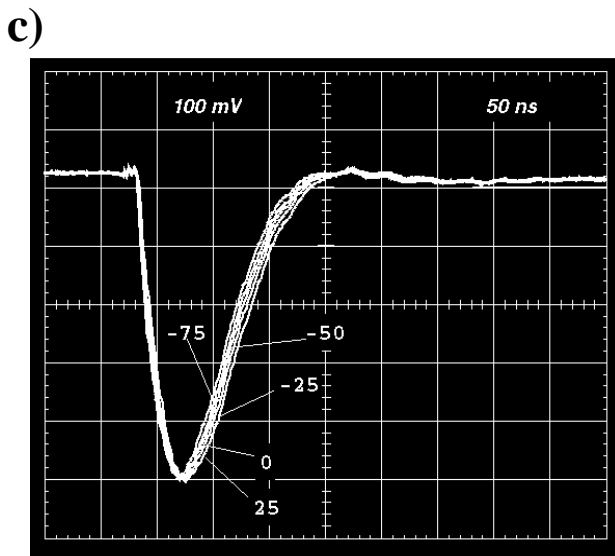
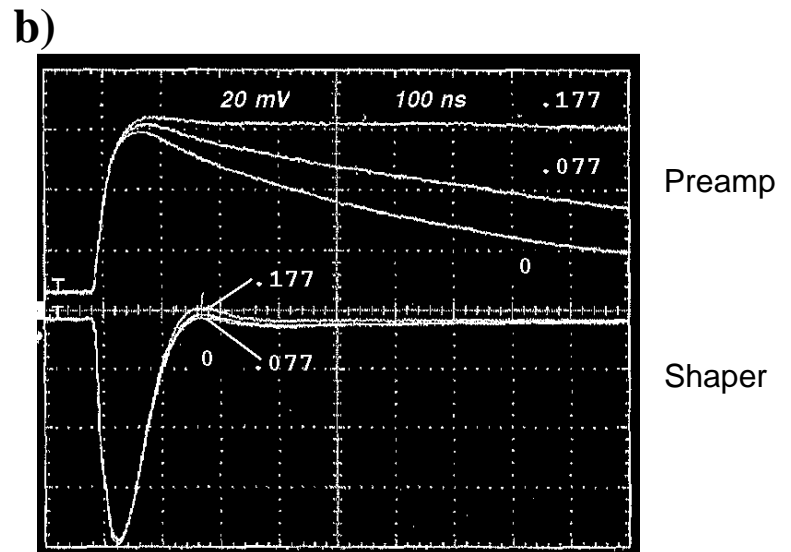
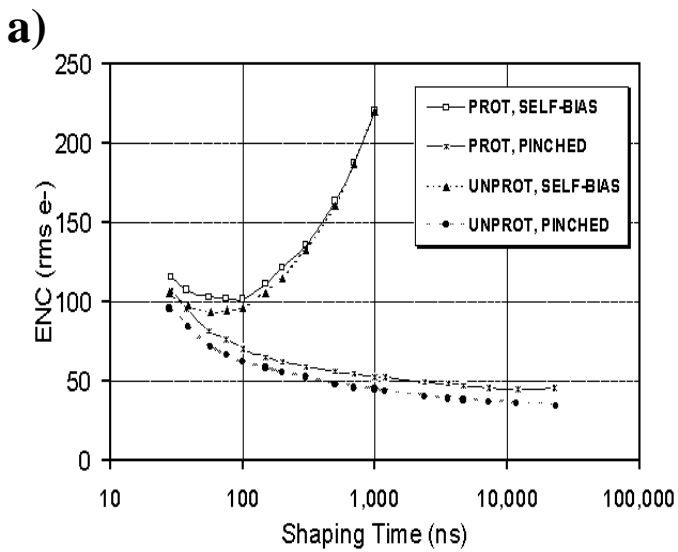
NAME	IC35		IC37	
LAYOUT (20:1 SCALE)				
EXPERIMENT	STAR			
SUB-DETECTOR	SILICON VERTEX TRACKER (DRIFT DET.)			
$C_{DET}$ RANGE	0.8 PF			
CIRCUIT	CALIBRATION, PREAMP, SHAPER			
NO. CHANNELS	16			
CHIP SIZE	2.65MM X 4.33 MM			2.26MM X 3.11MM
PACKAGE	DIRECT WIREBONDING TO HYBRID SUBSTRATE			
GAIN	33 MV/FC			20 - 90 MV/FC, IN 4 STEPS
PULSE SHAPE	UNIPOLAR SEMIGAUSSIAN, 50 NSEC PEAKING			
SNR	120:1			
POWER	11 MW/CHANNEL			6.5 MW/CHANNEL
COMMENT	5 MW STABLE, LINEAR MOS RESISTOR FOR LOW PARALLEL NOISE IC37 HAS DC SENSE OF DETECTOR LEAKAGE, "HIGH DRIVE" MODE TO DRIVE 2M CABLE			

Fig. 2



a) ENC vs. peaking time (using external shaper).

b) Preamp and preamp/shaper output for varying VG.

c) Preamp/shaper output for varying temperature.

e) Am<sup>241</sup> spectrum, measured using 1 pF Si detector, CMOS preamp + external shaper, room temperature