

Variable	Specification
Technology	TSMC CMOS 130 nm
Channels per	128
Input / Output pitch	80 μm / 140 μm
Total power dissipation	< 768 mW
Radiation hardness	0.3 MGy
Sensor input capacitance	1.6–12 pF
Noise	$\sim 1000 e^- @ 10 \text{ pF} + 50 e^- / \text{pF}$
Maximum cross-talk	Less than 5% between channels
Signal polarity	Both electron and hole collection
Dynamic range	Input charge up to $\sim 30\,000 e^-$
Linearity	Within 5% over dynamic range
Pulse shape and tail	$T_{peak} \sim 25 \text{ ns}$, amplitude after $2 \times T_{peak} < 5\%$ of peak
Gain uniformity	Uniformity across channels within $\sim 5\%$
ADC bits	6 bits (5 bits for each polarity)
ADC sampling rate	40 MHz
functions	Pedestal and MCM subtraction, zero suppression
Output formats	Non-zero suppressed, zero suppressed
Calibration modes	Analogue test pulses, digital data loading
Output serialiser	Three to five serial e-links, at 320 Mbit/s
Slow controls interface	
Fast digital signals interface	Differential, SLVS