

The Ion PGM System

High-quality, accessible sequencing

The Ion PGM™ System makes affordable, high-quality next-generation sequencing accessible to human disease researchers and microbiologists around the world. The Ion PGM System is a reliable sequencing platform that combines simple sample preparation and data analysis solutions with flexible chip output for ultimate project flexibility.



Ion PGM System performance specifications

		Ion 314™ Chip v2 or Ion 314 Chip v2 BC	Ion 316™ Chip v2 or Ion 316 Chip v2 BC	Ion 318™ Chip v2 or Ion 318 Chip v2 BC
Output*	200 base 400 base†	30–50 Mb 60–100 Mb	300–600 Mb 600 Mb–1Gb	600 Mb–1Gb 1.2–2 Gb
Reads		400–550 thousand	2–3 million	4–5.5 million
Run time	200 base 400 base	2.3 hr 3.7 hr	3.0 hr 4.9 hr	4.4 hr 7.3 hr

Research areas Cancer research, inherited disease research, microbial genomics, stem cell research, agriculture, epigenomics, metagenomics, forensic science, and ancient DNA genomics

Key applications Targeted DNA sequencing, copy number analysis, targeted RNA sequencing, small RNA sequencing, *de novo* microbial sequencing, bacterial typing research, viral typing research, CHIP sequencing, methylation analysis, SNP verification, and genotyping by sequencing

Target selection solutions Ion AmpliSeq™ technology, Ion TargetSeq™ kits (3 custom enrichment kits and 1 multi-blocker kit)

Library solutions Ion AmpliSeq™ Library Kits, Ion Xpress™ Plus Fragment Library Kit, Ion Total RNA-Seq Kit v2, Ion Library Equalizer™ Kit, and 384 barcodes supported by Torrent Suite™ Software

Data analysis solutions Torrent Suite Software processes signals, calls bases, aligns sequences, and performs basic variant calling as the primary analysis software for the Ion PGM™ Sequencer.

Optimized data analysis workflows have been developed for targeted DNA sequencing, targeted RNA sequencing, microbial *de novo* sequencing, microbial typing research, and other research applications using third-party software solutions and freely downloadable plug-ins.

Ion Reporter™ Software performs controlled analysis, annotation, and reporting of variants along with application-specific workflows to support single, trio, and paired tumor–normal analysis.

Ion PGM Sequencer specifications

Working environment (for indoor use only)	Temperature: 68–77°F (20–25°C)	Clearances:	
	Humidity: 40–60%, noncondensing	12 in. (30.5 cm) in rear	4 in. (10 cm) on left side
	Altitude: <6,500 ft (2,000 m)	4 in. (10 cm) on right side	4 in. (10 cm) from front edge of bench to sequencer bezel
		36 in. (90 cm) aisle in front of bench for operator access	8 in. (20 cm) from front edge of bench to the conical tubes
Gas supply	Connection: 0.25 in. push-to-connect fitting	Pressure: 35–45 psi	Composition: nitrogen (grade 4.5, 99.995% or better)
Other connections	Ethernet: 1 GigE	USB: 2x USB 2.0	
Power	Voltage: 100 V (min) to 240 V (max) Current: 9 A (max)	Frequency: 50/60 Hz	Power draw: 200–300 W
Dimensions	24 x 20 x 21 in./61 x 51 x 53 cm (W x D x H)		
Weight	Crated for shipment: 85 lb/39 kg	Free-standing: 65 lb/30kg	

Ion PGM Torrent Server specifications

Product configuration	A single free-standing tower computer appliance, included with the purchase of the Ion PGM System. Includes Torrent Suite Software with all necessary software components to deliver signal processing, base calling, read alignment, and variant calling.		
Processor	Dual 8-core 2.6 GHz CPUs		
Memory	64 GB RAM		
Storage (approx.)	18 TB		
Operating System	Ubuntu™		
Dimensions (approx.)	9 x 28 x 43 in./22 x 71 x 17 cm (W x D x H)		
Weight (approx.)	121 lb/55 kg		
Power	Voltage: 100 V (min) to 240 V (max) Current: 12 A (max)	Frequency: 50/60 Hz	Power draw: 1,100 W
Data formats	Industry-standard FASTQ, SFF, BAM, and VCF format outputs		

Ordering information

Product	Cat. No.
Ion PGM System (includes Ion PGM Sequencer and Ion PGM Torrent Server)	4462921
Ion Chef System	4484177
Ion OneTouch 2 System	4474779

Find out more at thermofisher.com/pgm

* Expected output with >99% aligned/measured accuracy. Output is dependent on read length and application.

† 400 base pair chemistry is not compatible with the Ion Chef™ Instrument at this time.

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