

Illumina, Inc. - HiSeq 2000 Sequencing System



GENERAL DESCRIPTION:

The Illumina HiSeq 2000 Sequencing System is an integrated platform that uses massively parallel sequencing technology for genetic analysis and functional genomics. It consists of the HiSeq 2000 sequencer, which uses TDI line scanning and dual surface imaging to generate up to 600 gigabases (Gb) per run and up to 60 Gb per day. Other components include the cBot



Cluster Generation System, a suite of data collection and analysis software, and dedicated consumables. cBot provides automated clonal amplification of single molecules randomly distributed on a glass surface. Resulting DNA clusters are sequenced on the HiSeq 2000 using sequencing by synthesis method with patented reversible terminator chemistry.

TECHNICAL DESCRIPTION:

Illumina sequencing technology leverages clonal array formation and proprietary reversible terminator technology for rapid and accurate large-scale sequencing. The innovative and flexible sequencing system enables a broad array of applications in genomics, transcriptomics, and epigenomics.

CONTACT INFORMATION

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COST

- \$690,000/system
- \$5,000/analysis

Tier Selection

Final tier assignment is based on overall product score.

- Top Tier
- Second Tier
- Third Tier
- ◐ Fourth Tier
- Bottom Tier

RANKINGS

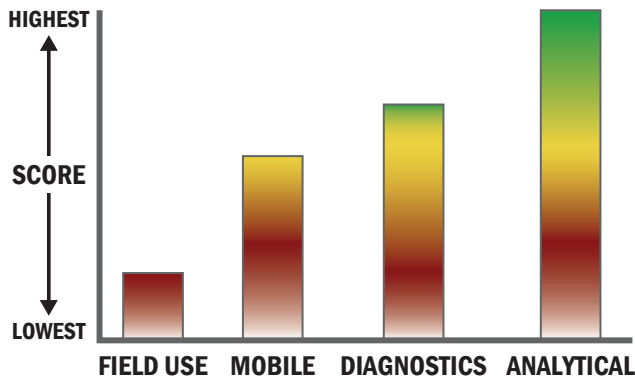
	Biological	Chemical	Radiological
FIELD USE System	● Bottom Tier	○ N/A	○ N/A
MOBILE Laboratory	● Bottom Tier	○ N/A	○ N/A
DIAGNOSTIC Laboratory	◐ Fourth Tier	○ N/A	○ N/A
ANALYTICAL Laboratory	○ Third Tier	○ N/A	○ N/A

Survey Source

Vendor and Internet Supplied Information

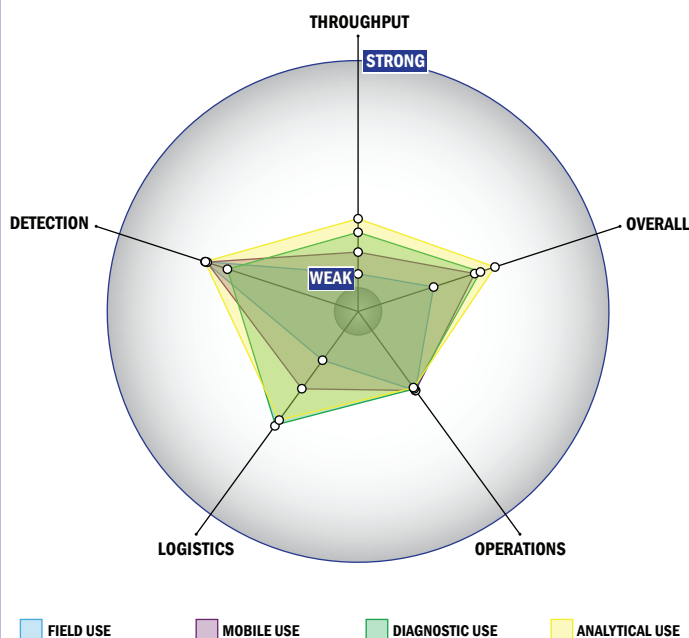
Scoring Analysis

System scores are compared across the four scenarios and ranked from highest to lowest.



Impact Chart

The Impact Chart is a spider graph representing specific categories and designed to give the reader a visual depiction of how a particular system is expected to operate across the four different scenarios. The score for each of the seven categories is presented as the percentage of the total possible score. Higher category scores extend the spokes of a graphic toward the outer edge of the chart. The area graphed for each of the four scenarios relates to how well the system performed in that scenario. Graphics for each of the four scenarios are super-imposed for ease of comparison.



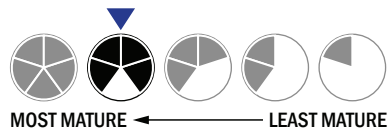
Evaluation Criteria

Throughput:

- Greater than 8 hours for detection
- Multiple samples, multiple tests/sample per run
- Less than 32 samples every 2 hours
- The system or device is currently fully automated
- Device or system is intended for multiple detection assays
- 5 or more solutions, buffer, eluents, and/or reagents
- 5 or more components
- Less than 5 minutes is required for set-up
- Greater than 12 steps are required for detection

Logistics:

- An afternoon of training and some technical skills required
- Larger than a home dishwasher
- More than 50 kg
- Wired connections are available
- System or device has 220V electrical requirement



Operations:

- Can be used from 25 °C to 37 °C
- Components must be frozen (-20 °C)
- Device or system has peak performance at normal relative humidity conditions
- Between 6 months and 1 year shelf life
- 5-10 years expected life
- Results can be viewed in real-time
- The system is not capable of autonomy
- The system software is open and available for modification
- The system hardware is closed and not available for modification

Detection:

- This system does not test liquids
- Excellent specificity. System has occasional false alarms under certain conditions (<2%)
- 100-1,000 CFU per mL
- 100-1,000 PFU per mL
- Manual kit not integrated with the system handles spore lysis

