Benchmark Name	BWA MEM	**Type**	Runnable Program
URL	https://github.com/lh3/bwa	**License**	MIT

Description
Aligns NA12878 GIAB 30x downsampled data to GRCh38 + HLA + Decoys.

Key Performance Indicators:	Genomes Per Hour

Running config:	1 Process * N_PROC threads (NUMA ON) 1 Process * N_PROC threads (NUMA OFF) N_NUMAZONES *(N_PROC / N_NUMAZONES) threads (NUMA ON)

File access patterns	
Fileset	*Behaviour*
Input FASTQ	Forward only streaming
Index	Random access
Reference genome FASTA file	Random access
Output SAM	Output streaming

Pinch points
CPU Compute - This process can use multiple threads. Input FASTQ and output SAM - IO Bandwidth Index - IO IOPS

Benchmark Name	BWA MEM 2	**Type**	Runnable Program
URL	https://github.com/bwa-mem2/bwa-mem2	**License**	MIT

Description
Aligns NA12878 GIAB 30x downsampled data to GRCh38 + HLA + Decoys.

Key Performance Indicators:	Genomes Per Hour

Running config:	1 Process * N_PROC threads (NUMA ON) 1 Process * N_PROC threads (NUMA OFF) N_NUMAZONES *(N_PROC / N_NUMAZONES) threads (NUMA ON)

File access patterns	
Fileset	*Behaviour*
Input FASTQ	Forward only streaming
Index	Random access
Reference genome FASTA file	Random access
Output SAM	Output streaming

Pinch points
CPU Compute - This process can use multiple threads. Input FASTQ and output SAM - IO Bandwidth Index - IO IOPS

Benchmark Name	CaVEMan	**Type**	Runnable Program
URL	https://github.com/cancerit/CaVEMan	**License**	AGPL v3

Description
Takes two aligned files and calls somatic SNVs

Key Performance Indicators:	Genome Pairs Per Hour

Running config:	1 Process * N_PROC threads (NUMA ON) 1 Process * N_PROC threads (NUMA OFF) N_NUMAZONES *(N_PROC / N_NUMAZONES) threads (NUMA ON)

File access patterns	
Fileset	*Behaviour*
Normal BAM	
Tumour BAM	

Pinch points

Benchmark Name	SigProfilerExtractor	**Type**	Runnable Program
URL	https://github.com/AlexandrovLab/SigProfilerExtractor	**License**	BSD-2-Clause

Description
Performs a non-negative matrix factorisation to identify mutation signatures. This program is only tractable on GPUs.

Key Performance Indicators:	Runs Per Hour

File access patterns	
Fileset	*Behaviour*
Input TSV	Forward only streaming
Index	Random access
Output text files	Output streaming

Pinch points
CPU Compute – This process can use multiple threads on the CPU. GPU Compute – This process can make use of multiple GPUs

Benchmark Name	mbw	**Type**	mbw
URL	https://github.com/raas/mbw	**License**	LGPLv2.1

Description
Generic synthetic memory bandwidth benchmark

Key Performance Indicators:	System memory bandwidth

File access patterns	
Fileset	*Behaviour*

Pinch points
Memory – This program is designed to stress the memory controller and DRAM bypassing the on CPU caches.

Benchmark Name	Geekbench 5	**Type**	Geekbench 5
URL	https://www.geekbench.com	**License**	Proprietary[1]

Description
Broad set of generic benchmarks

Key Performance Indicators:	Geekbench single and multithreaded scores

File access patterns	
Fileset	*Behaviour*
N/A	N/A

Pinch points

[1] Requires per user pro license to use for commercial purposes.

Benchmark Name	Iozone	**Type**	iozone
URL	https://www.iozone.org	**License**	Proprietary[2]

Description
Generic synthetic IO benchmark

Key Performance Indicators:	Primary storage device bandwidth and IOPS

File access patterns	
Fileset	*Behaviour*

Pinch points
IO bandwidth and IOPS

[2] Author restricts right to make derivative works