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KaryoStudio System Information and Benchmark Performance

System information and benchmark performance data for determining hardware, software, and memory requirements for analysis of Infinium® DNA BeadChips within Illumina's analysis software for cytogenetics.

Introduction

This document includes the following information:

- **Hardware, operating system, and memory requirements for analysis of Illumina DNA BeadChips using the KaryoStudio software application**
- **Report file size estimates**
- **Benchmark performance data for common operations performed on multiple computer setups**

Hardware And Operating System Requirements

Illumina recommends the following hardware and operating systems for your KaryoStudio cytogenetics analysis projects (Tables 1 and 2).

Table 1: Hardware and Operating System Requirements

Minimum System	Recommended System
Intel Pentium IV or newer processor (1.5 GHz)	Intel Pentium IV or newer processor (2.0 GHz)
32-bit system*	64-bit system
4 GB RAM*	8 GB RAM*
100+ GB hard drive	100+ GB hard drive
1,024 x 768 video display	1,024 x 768 video display
Window XP SP2, Windows Vista, or Windows 7 operating system	Window XP SP2, Windows Vista, or Windows 7 operating system
Microsoft.Net framework 3.5 or above	Microsoft.Net framework 3.5 or above
1 GB or higher network connection	1 GB or higher network connection

*A 64-bit system and 8 GB of RAM are required for high-density BeadChips (approximately 1M markers or more).

Table 2: System Requirements for Infinium HD BeadChips*

Beadchip	Processor	System	RAM	Hard Drive
Low-Density (≤ 500k markers)	Intel Pentium 4 or newer	32-bit	4 GB	100 GB+
Medium-Density (500k–1M markers)		64-bit	8 GB	
High-Density (≥ 1M markers)		64-bit	8 GB	

*Minimum system requirements provided. A 64-bit, 8 GB RAM system configuration is preferable for all densities.

Report File Sizes And Storage

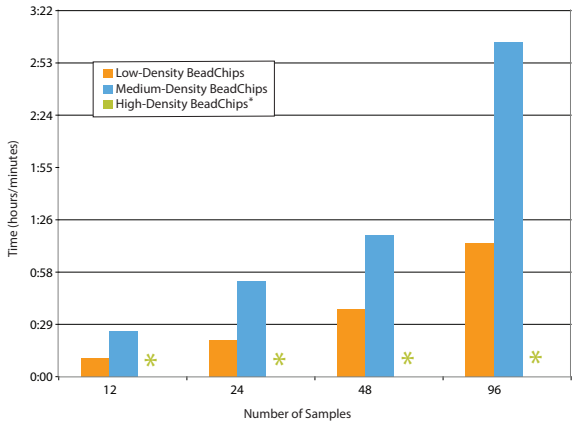
Report file sizes vary based on the Infinium BeadChip used and the number of samples in a project. For example, a *.pdf report containing five aberrations identified from data generated by a low-density BeadChip will be approximately 200–400 KB in size.

Benchmark Performance

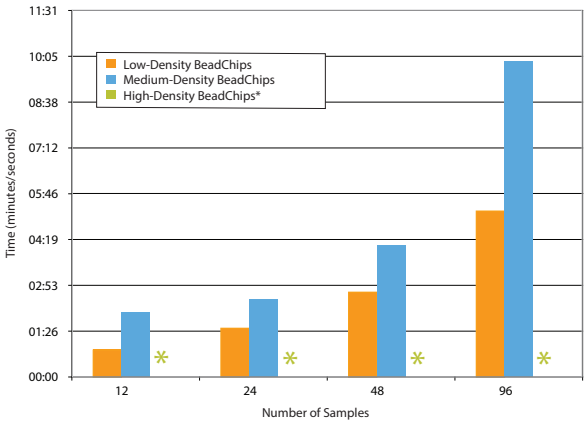
Graphs A and C in Figure 1 provides benchmark performance data for the creation of projects in KaryoStudio, including data importation and scanning by cnvPartition. Graphs B and D display the time required to generate reports. Note that it takes about the same amount of time to create projects and reports for low-density and medium-density BeadChips.

Figure 1: Benchmark Performance Data For Infinium HD BeadChips

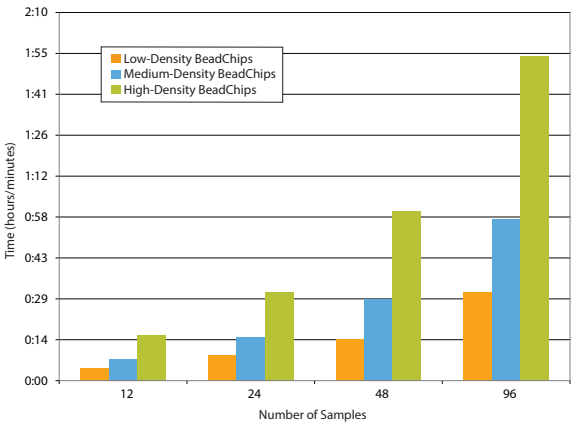
A: Project Creation
32-bit Windows XP, 4 GB RAM*



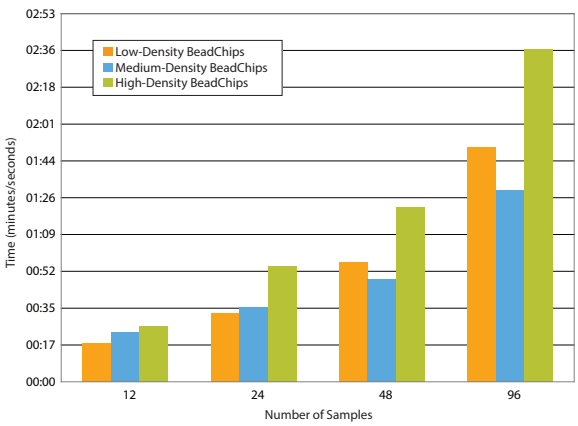
B: Cytogenetics Report Generation
32-bit Windows XP, 4 GB RAM*



C: Project Creation
64-bit Windows XP, 8 GB RAM



D: Cytogenetics Report Generation
64-bit Windows XP, 8 GB RAM



Project creation and report generation were performed using cnvPartition v1.0.2. Newer versions of cnvPartition provide additional functionality and may require additional processing time. Note that KaryoStudio only uses file-based storage.

*This congfiguration has insufficient memory for processing high-density BeadChip data.

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