To account for rapid performance gains in microprocessors (MPUs), the central processing units in computers, a hedonic price index was developed. Hedonic price indexes use product characteristics data to estimate the product price holding quality constant.

Prices for specific MPU models were collected from published wholesale price lists (1,000 unit trays) from Intel Corp. (See <http://www.intc.com/pricelist.cfm>) MPU scores on "benchmarks"—programs designed to test performance on common computing tasks—were used from System Performance Evaluation Corporation (SPEC). For an overall performance score, a geometric mean of composite scores for integer and floating point benchmark tests was used. (See <http://www.spec.org>)

To account for changes in the mix of computing end-use markets over time, the hedonic regression includes MPU product class (e.g. mainstream, performance, extreme) as reported by IDC Corp. (See "IDC PC Processors by Intended PC System Type", December, 2012.) To account for the impact on performance from other features of the computer used to test the MPU, the hedonic regression includes system memory; system vendor (e.g. Dell, IBM); and, for server systems, number of processors. The log-price of each MPU model was regressed on the performance score, control variables and quarterly dummy variables. Coefficients on the dummy variables were used to construct a price index.

Separate indexes were created for MPUs used in desktop PCs and servers. Mobile system MPUs were not included because of limited data availability and the relatively small share of domestic production for this class of chips. Desktop and server indexes were weighted by global revenue shares reported by IDC Corp. to create a composite index.

Only prices reported on the first introduction of each model are employed to mitigate concern that transaction prices reflect discounts that evolve over the life of the model. (Many list prices were unchanged when closely-related new models with better performance were introduced.) The date of model introduction was based on company statements. (See <http://ark.intel.com/> )