QUICK START GUIDE

Anaconda Accelerate

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ANALYTICS

http://continuum.io | 4301 Westbank Dr. Suite A-100, Austin, TX 78746

Anaconda Accelerate is an add-on to Continuum's free enterprise Python distribution, Anaconda. It enables fast Python processing on your GPU or multi-core CPU.

Accelerate includes two packages that can be added to your Python installation: NumbaPro and MKL Optimizations. MKL Optimizations makes linear algebra, random number generation, Fourier transforms, and many other operations run faster and in parallel. NumbaPro builds fast GPU and multi-core machine code from easy-to-read Python and NumPy code with a Python-to-GPU compiler.

INSTALLATION

System Requirements		
Linux	**Windows**	**Mac OSX**
x86 & x86_64	x86 & x86_64	x86_64

Available in Anaconda for Python 2.6, 2.7, 3.3, and 3.4.

Install From Anaconda

Download and install Anaconda for free from https://store.continuum.io/cshop/anaconda

In terminal:

```
conda update conda
conda install accelerate
```

Licenses can be purchased from https://store.continuum.io/cshop/accelerate/

Supported GPUs

NVIDIA CUDA enabled GPU with compute capability 2.0 or above. List of CUDA GPUs.

CUSTOM INSTALLER FOR ENTERPRISES

We can provide custom installers, tailored to the environment for enterprise users. Contact sales@continuum.io for more information.

GETTING STARTED

Accelerate includes two packages: NumbaPro and MKL Optimizations.

To start using NumbaPro, turn to page 5 of this Quick Start Guide or download the NumbaPro Quick Start Guide.

To start using MKL Optimizations, turn to page 8 of this Quick Start Guide or download the MKL Optimizations Quick Start Guide.

DOCUMENTATION

Anaconda Accelerate Documentation
NumbaPro Documentation
MKL Optimizations Documentation

Support

accelerate_support@continuum.io

Continuum Analytics Training & Consulting

Continuum Analytics offers several Python training courses. All of our courses, taught by Python experts, embody the philosophy that the best way to learn is with hands-on experience to real world problems. These courses are available to individuals online, at numerous sites, or as an in-house course at your place of business. We also offer Python-based consulting services for the analysis, management and visualization of scientific and business data or optimizing your processing workflows on modern hardware and GPUs.

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NumbaPro

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NumbaPro compiles Python code for multicore processors, accelerators, and co-processors to take maximal advantage of your computational hardware. It is a component of Anaconda Accelerate.

Numba is an open source Python compiler that optimizes Python numeric code to match the performance of native code. NumbaPro extends Numba with multicore and CUDA backends, allowing programmers to develop performance critical code in the comfort of Python.

INSTALLATION

System Requirements
Python: 2.6, 2.7, 3.3, 3.4
(required for CUDA support only) NVIDIA CUDA-enabled GPU with compute capability 2.0 or above. CUDA Toolkit 5 or above (https://developer.nvidia.com/cuda-toolkit)

Install From Anaconda

Download and install Anaconda for free from
https://store.continuum.io/cshop/anaconda

In terminal:

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conda update conda
conda install accelerate
```

Licenses can be purchased from https://store.continuum.io/cshop/accelerate/

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GETTING STARTED

Multithreaded ufunc

```
from numbapro import vectorize, float32
@vectorize([float32(float32, float32)],
          target=’parallel’)
def sum(a, b):
     return a + b
```

CUDA accelerated ufunc

```
from numbapro import vectorize, float32
@vectorize([float32(float32, float32)],
          target=’gpu’)
def sum(a, b):
     return a + b
```

DOCUMENTATION

Full documentation
http://docs.continuum.io/numbapro/index.html
Vectorize
http://docs.continuum.io/numbapro/ufuncs.html
CUDA JIT
http://docs.continuum.io/numbapro/CUDAJit.html
cuRAND, cuFFT, cuBLAS
http://docs.continuum.io/numbapro/cudalib.html

Examples

Basic CUDA JIT
https://github.com/ContinuumIO/numbapro-examples/tree/master/cudajit
BlackScholes
https://github.com/ContinuumIO/numbapro-examples/tree/master/blackscholes
Monte Carlo Pricer
https://github.com/ContinuumIO/numbapro-examples/tree/master/monte_carlo_pricer
http://continuum.io/blog/monte-carlo-pricer

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MKL Optimizations

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Developed specifically for science, engineering, and financial computations, Intel™ Math Kernel Library 11.0.3 (MKL) is a set of threaded and vectorized math routines that work to accelerate various math functions and applications. Continuum has packaged MKL-powered binary versions of some of the most popular numerical/scientific Python libraries into MKL Optimizations for improved performance.

INSTALLATION

System Requirements		
Linux	Windows	Max OS X
32/64 bit Intel processor	32/64 bit Intel processor	64 bit Intel processor
Python: 2.6, 2.7, 3.3, 3.4		

Install From Anaconda

Download and install Anaconda for free from https://store.continuum.io/cshop/anaconda

In terminal:

```
conda update conda
conda install mkl
```

Licenses can be purchased from https://store.continuum.io/cshop/mkl-optimizations/

CUSTOM INSTALLER FOR ENTERPRISES

We can provide custom installers, tailored to the environment for enterprise users. Contact sales@continuum.io for more information.

GETTING STARTED

Continue using NumPy, NumExpr, SciPy and Scikit-Learn as you have been. Once MKL Optimizations is installed, your code will run faster, with no additional effort on your part!

DOCUMENTATION

http://docs.continuum.io/mkl-optimizations/index.html
http://continuum.io/blog/mkl-optimizations

Examples
https://github.com/ContinuumIO/mkl-optimizations-benchmarks

For more information on MKL itself, please consult the Intel website
http://software.intel.com/en-us/intel-mkl