

CM1K Pattern recognition chip with 1024 neurons in parallel

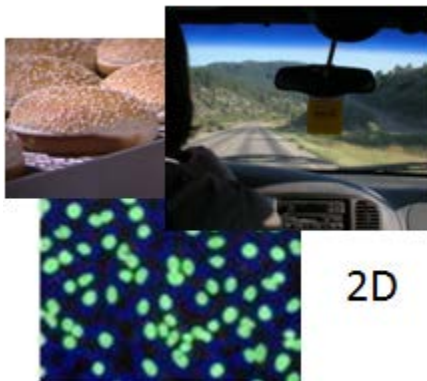
CM1K is the first ASIC version of the CogniMem neural network. It features 1024 neurons working in parallel and capable of learning and recognizing patterns of up to 256-bytes in a few microseconds. The two known non-linear classifiers (RBF and KNN) supported by the CM1K can classify patterns while coping with ill-defined data, unknown events and changes of contexts and working conditions. The parallel architecture of CM1K allows to daisy-chain many chips together to increase the size of the neural network by increment of 1024 neurons. Its low pin-count and low power consumption make it an ideal companion chip for smart sensors and cameras. Its cascadability makes it an ideal candidate for large data mining systems.

Features

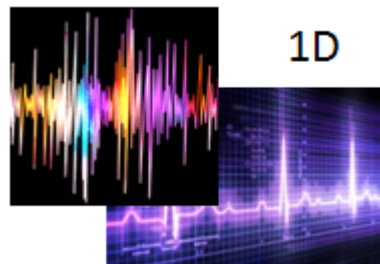
- Recognize one vector among 1024, or actually among any number, in 10 microseconds with a 27 Mhz clock
- Recognition time independent from the number of models
- Learn a vector in 10 microseconds
- Save and load models (i.e. your knowledge base)
- Simple RTL instructions (less than a dozen registers)
- Parallel and serial communication
- Optional digital input bus directly interfaced to a recognition stage



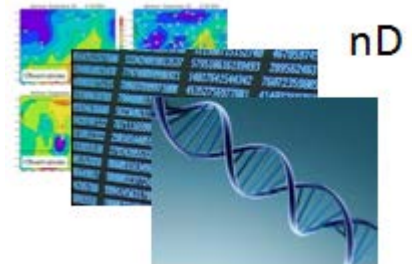
At 27Mhz, CM1K is 90 times faster than a DSP at 300Mhz to match one pattern of 256 bytes among 1024.



2D



1D



nD

Image recognition

- Part inspection
- Object recognition
- Face recognition
- Target tracking and identification
- Video monitoring
- Gaze tracking
- Medical imaging, satellite imaging
- Smart motion detection, kinematics
- More...

Signal recognition

- Speech recognition
- Voice identification
- Radar identification
- EKG, EEG monitoring
- Sonar identification
- Spectrum recognition
- Flight analysis
- Vibration monitoring
- More...

Data mining

- Cryptography
- Genomics
- Bio Informatics
- Fingerprint identification
- Unstructured data mining
- CRC
- More...

