Abstract

Most of artificial neural network simulation, real number are fully represented, using 64 bit or 32 bit. Implementation of the simulation on hardware will increase silicon size, as container of bits, while processing calculation. Silicon size can be optimized by limitating precision. Precision limitation are conducted in order to produce the right precision, which its representation yield almost same as full precision. Therefore, effect of limited precision calculation toward real number representation formats need to be observed. Floating point has been familiarly used and owned Internasional standard. Another format is fixed point, which have been applied by several hardware desainer especially on hardwares which do not have embbeded Floating point Unit (FPU) for doing real number calculation. On this final task, limited precision application on artificial neural network Backpropagation method have been observed. Research are applied on short-range burden electricity assesment. The result of this research reveals that fixed point with 32 until 18 wordlength precision can conduct training and forecasting on short-range burden electricity assesment sistem producing average accuration more than 90%.

Keywords : limited precision, floating point, fixed point, Backpropagation