ABSTRACT

Provided is a quantum computer controller having exceptional usability, scalability, robustness and other such aspects. A controller 110 of a quantum computer 100 includes a server 130 configured to calculate a waveform signal for manipulating a qubit system 120 having a plurality of qubits, and a plurality of signal processing units 140-1 to 140-N each configured to generate, based on the waveform signal, an electromagnetic wave signal with which the qubit system is irradiated. Each signal processing unit includes a logic device that performs digital signal processing on the waveform signal to generate a baseband signal, a digital oscillator that generates an oscillation signal, a mixer that mixes the baseband signal and the oscillation signal to output a mixed signal, a DA converter that performs a DA conversion on the mixed signal to obtain an analog signal, an RF circuit that generates the electromagnetic wave signal from the analog signal, and an AD converter that performs an AD conversion on an input signal from the RF circuit.

FIG. 2