WHAT IS CLAIMED IS:

1. A conveyance system for conveying a workpiece to each of a plurality of processing apparatuses, comprising:

a conveyance passage disposed in a space directly above the processing apparatus across a plurality of the processing apparatuses;

an automated conveying vehicle for traveling on the conveyance passage, the automated conveying vehicle including a storage member having a space for storing a workpiece therein, a plurality of first traveling mechanisms mounted on the storage member, and a receiver for receiving control signals;

a storage member conveying unit mounted on an upper portion of the automated conveying vehicle, a plurality of second traveling mechanisms mounted on the storage member conveying unit, and a plurality of wires mounted on the storage member conveying unit, for coupling the automated conveying vehicle and the storage member conveying unit, and for elevating and lowering the storage member while suspending the storage member from above;

a stock unit including a storage member holding base for holding the storage member in transferring the workpiece from a workpiece stocker storing workpieces

therein to the storage member of the automated conveying vehicle, and a receiver for receiving control signals, wherein the storage member conveying unit conveys the storage member between a region of the conveyance passage above the stock unit and the storage member holding base of the stock unit or between a region of the conveyance passage above the processing apparatus and an inside of the processing apparatus; and

a control unit including a transmitter for transmitting control signals to the processing apparatus, the automated conveying vehicle, and the stock unit, a receiver for receiving notification signals transmitted from the processing apparatus, and a control signal generating section for generating control signals to be transmitted from the transmitter, wherein

the control signal generating section of the control unit generates control signals to be transmitted from the transmitter of the control unit on a basis of notification signals received by the receiver of the control unit,

the transmitter of the control unit transmits control signals generated by the control signal generating section of the control unit to the processing apparatus, the automated conveying vehicle, and the stock unit,

the automated conveying vehicle travels on the conveyance passage on a basis of control signals received by the receiver, and

the storage member of the automated conveying vehicle is conveyed, together with the workpiece stored in the storage member, from the region of the conveyance passage above the processing apparatus to the inside of the processing apparatus.

2. The conveyance system according to claim 1, wherein

the conveyance passage is set on an upper surface of the processing apparatus.

3. The conveyance system according to claim 1, wherein

the storage member includes a pair of side walls having respective openings defined therein to allow the workpiece to pass therethrough; and

the space in the storage member is open to the outside of the storage member through the respective openings.

4. The conveyance system according to claim 1, wherein

the storage member conveying unit houses therein a control apparatus for controlling operation of the

automated conveying vehicle and the storage member conveying unit.

5. The conveyance system according to claim 1, wherein

a protrusive block is disposed on an upper surface of the storage member conveying unit; and

the plurality of second traveling mechanisms are mounted on side surfaces of the protrusive block.

6. The conveyance system according to claim 1, wherein

the storage member conveying unit houses therein a winch for winding up and down the plurality of wires.