

## WHAT IS CLAIMED IS:

## 1. A program executing apparatus, comprising:

a nonvolatile memory operable to store a program for activating equipment and first and second variables used in the program, and to sustain the stored program and the variables even though power is not supplied, the program and the variables being able to be read out and written into the nonvolatile memory, wherein the nonvolatile memory is a random-access memory, and wherein the first variable does not vary even though the program is executed and the second variable varies according to the execution of the program;

a read only memory operable to store the program and the first and second variables at an initial status where the program and the variables are not stored in the nonvolatile memory;

an executing unit operable:

to transmit the program and the variables to the nonvolatile memory when the activation of the equipment is instructed at the initial status, and to subsequently execute the program using the variables stored in the nonvolatile memory; and

when the activation of the equipment is re-instructed to execute the program which is stored in the nonvolatile memory using the first variable which was transmitted to and stored in the nonvolatile memory at the time when the activation of the equipment was instructed at the initial status and using a copy of the second variable which was not used when the program was executed before the activation of the equipment was re-instructed, wherein

both of the second variable and the copy of the second variable which are transmitted to and stored in the nonvolatile memory when the activation of equipment is instructed at the initial status.

## 2. The program executing apparatus of claim 1, wherein

the read only memory stores the program and the variables in a compressed format, and

the executing unit decompresses the compressed program and the variables that are stored in the read only memory.

3. The program executing apparatus according to any one of claims 1 and 2, wherein the nonvolatile memory is one of an MRAM, a FeRAM, a PRAM, and a ReRAM.

4. The program executing apparatus according to claim 1, wherein the first variable includes a read-only data and the second variable includes a block started by symbol.

5. An image forming apparatus, comprising:  
 an image processing unit that performs at least one of processes including an image forming process to form an image on a recording material, an image reading process to read an image formed on a recording material, and an image transmitting and receiving process to transmit and receive the image; and  
 a program executing apparatus according to any one of claims 1 to 4,  
 wherein the nonvolatile memory stores a program for activating at least one of the processes.

6. A program causing a computer to execute a process for executing a program executing method, comprising:

storing a program for activating equipment and first and second variables used in the program in a nonvolatile memory in which the program and the variables can be read out and written into, and which sustains the stored program and the variables even though power is not supplied, wherein the nonvolatile memory is a random-access memory, and wherein the first variable does not vary even though the program is executed and the second variable varies according to the execution of the program;

storing the program and the variables in a read only memory operable to store the program and the first and second variables at an initial status where the program and the variables are not stored in the nonvolatile memory;

transmitting the program and the variables to the nonvolatile memory when the activation of the equipment is instructed at the initial status, and subsequently

executing the program stored in the nonvolatile memory using the variables stored in the nonvolatile memory; and

when the activation of the equipment is re-instructed, executing the program stored in the nonvolatile memory using the first variable which was transmitted to and stored in the nonvolatile memory at the time when the activation of the equipment was instructed at the

initial status and using a copy of the second variable which was not used when the program was executed before the activation of the equipment was re-instructed, wherein

both of the second variable and the copy of the second variable which are transmitted to and stored in the nonvolatile memory when the activation of equipment is instructed at the initial status.

## WHAT IS CLAIMED IS:

1. A program executing apparatus, comprising:
 

a nonvolatile memory that stores a program for activating an equipment and a variable used in the program and sustains the stored program and the variable even though power is not supplied, the program and the variable being able to be read out and written into the nonvolatile memory; and

an executing unit that transmits the program and the variable to the nonvolatile memory when the activation of the equipment is instructed at an initial status where the program and the variable are not stored in the nonvolatile memory, and successively executes the program using the variable stored in the nonvolatile memory, and, when the activation of the equipment is re-instructed, executes the program using the variable stored in the nonvolatile memory, wherein

the variable includes a first variable which does not vary even though the program is executed and a second variable which varies according to the execution of the program, and wherein

when the activation of the equipment is re-instructed, the executing unit executes the program which is stored in the nonvolatile memory using the first variable and the second variable which are transmitted to and stored to the nonvolatile memory at the time when the activation of the equipment is instructed at an initial status,

when the activation of the equipment is re-instructed, the executing unit executes the program which is stored in the nonvolatile memory using the first variable which is transmitted to and stored in the nonvolatile memory at the time when the activation of the equipment is instructed at an initial status and the second variable which is transmitted to and is stored in the nonvolatile memory at the time when the activation of the equipment is re-instructed,

the activation of the equipment is performed in response to supplying the power to the equipment,

when the activation of the equipment is instructed at the initial status, the executing unit stores in first and second areas of the non-volatile memory, the first and second variables obtained by decompressing the program, and

when the activation of the equipment is re-instructed, the executing unit restores in the non-volatile memory, only the second variable among the first and second variables by decompressing a part of the program.

2. The program executing apparatus according to claim 1, wherein when the activation of the equipment is re-instructed, the executing unit executes the program which is stored in the nonvolatile memory using the first variable which is transmitted to and stored in the nonvolatile memory at the time when the activation of the equipment is instructed at an initial status and the second variable which is transmitted to and stored in the nonvolatile memory when the activation of the equipment is instructed at the initial status and is not used when the program is executed.
3. The program executing apparatus according to claim 1, further comprising: a read only memory that stores the program and the variable, wherein the executing unit transmits the program and the variable stored in the read only memory to the nonvolatile memory.
4. The program executing apparatus according to claim 3, wherein the read only memory stores the program and the variable in a compressed format, and the executing unit decompresses the compressed program and the variable that are stored in the read only memory.
5. The program executing apparatus according to claim 1, wherein the nonvolatile memory is one of an MRAM, a FeRAM, a PRAM, and a ReRAM.
6. The program executing apparatus according to claim 1, wherein the first variable includes a read-only data and the second variable includes a block started by symbol.
7. An image forming apparatus, comprising:  
an image processing unit that performs at least one of processes including an image forming process to form an image on a recording material, an image reading process to read an image formed on a recording material, and an image transmitting and receiving process to transmit and receive the image;  
a nonvolatile memory that stores a program for activating at least one of the processes and a variable used in the program and sustains the stored program and variable even

though power is not supplied, the program and the variable being able to be read out and written into the nonvolatile memory; and

an executing unit that transmits the program and the variable to the nonvolatile memory when the activation of at least one of the processes is instructed at an initial status where the program and the variable are not stored in the nonvolatile memory, and successively executes the program using the variable stored in the nonvolatile memory, and, when the activation of at least one of the processes is re-instructed, executes the program using the variable stored in the nonvolatile memory, wherein

the variable includes a first variable which does not vary even though the program is executed and a second variable which varies according to the execution of the program, and wherein

when the activation of the equipment is re-instructed, the executing unit executes the program which is stored in the nonvolatile memory using the first variable and the second variable which are transmitted to and stored to the nonvolatile memory at the time when the activation of the equipment is instructed at an initial status,

when the activation of the equipment is re-instructed, the executing unit executes the program which is stored in the nonvolatile memory using the first variable which is transmitted to and stored in the nonvolatile memory at the time when the activation of the equipment is instructed at an initial status and the second variable which is transmitted to and is stored in the nonvolatile memory at the time when the activation of the equipment is re-instructed,

the activation of the equipment is performed in response to supplying the power to the equipment,

when the activation of the equipment is instructed at the initial status, the executing unit stores in first and second areas of the non-volatile memory, the first and second variables obtained by decompressing the program, and

when the activation of the equipment is re-instructed, the executing unit restores in the non-volatile memory, only the second variable among the first and second variables by decompressing a part of the program.

8. A non-transitory computer-readable medium storing a program causing a computer to execute a process for executing a program executing method, comprising:  
storing a program for activating an equipment and a variable used in the program in a nonvolatile memory in which the program and the variable can be read out and written

into, and which sustains the stored program and the variable even though power is not supplied;

transmitting the program and the variable to the nonvolatile memory when the activation of the equipment is instructed at an initial status where the program and the variable are not stored in the nonvolatile memory; and

executing the program stored in the nonvolatile memory using the variable stored in the nonvolatile memory, and, when the activation of the equipment is re-instructed, executing the program stored in the nonvolatile memory using the variable stored in the nonvolatile memory, wherein

the variable includes a first variable which does not vary even though the program is executed and a second variable which varies according to the execution of the program, and wherein

when the activation of the equipment is re-instructed, the executing unit executes the program which is stored in the nonvolatile memory using the first variable and the second variable which are transmitted to and stored to the nonvolatile memory at the time when the activation of the equipment is instructed at an initial status,

when the activation of the equipment is re-instructed, the executing unit executes the program which is stored in the nonvolatile memory using the first variable which is transmitted to and stored in the nonvolatile memory at the time when the activation of the equipment is instructed at an initial status and the second variable which is transmitted to and is stored in the nonvolatile memory at the time when the activation of the equipment is re-instructed,

the activation of the equipment is performed in response to supplying the power to the equipment,

when the activation of the equipment is instructed at the initial status, the executing unit stores in first and second areas of the non-volatile memory, the first and second variables obtained by decompressing the program, and

when the activation of the equipment is re-instructed, the executing unit restores in the non-volatile memory, only the second variable among the first and second variables by decompressing a part of the program.

9. A program executing apparatus, comprising:

a nonvolatile memory that stores a program for activating an equipment and a variable used in the program and sustains the stored program and the variable even though

power is not supplied, the program and the variable being able to be read out and written into the nonvolatile memory; and

an executing unit that transmits the program and the variable to the nonvolatile memory when the activation of the equipment is instructed at an initial status where the program and the variable are not stored in the nonvolatile memory, and successively executes the program using the variable stored in the nonvolatile memory, and, when the activation of the equipment is re-instructed, executes the program using the variable stored in the nonvolatile memory, wherein

the variable includes a first variable which does not vary even though the program is executed and a second variable which varies according to the execution of the program, and wherein

when the activation of the equipment is re-instructed, the executing unit executes the program which is stored in the nonvolatile memory using the first variable and the second variable which are transmitted to and stored to the nonvolatile memory at the time when the activation of the equipment is instructed at an initial status,

when the activation of the equipment is re-instructed, the executing unit executes the program which is stored in the nonvolatile memory using the first variable which is transmitted to and stored in the nonvolatile memory at the time when the activation of the equipment is instructed at an initial status and the second variable which is transmitted to and stored in the nonvolatile memory when the activation of the equipment is instructed at the initial status and is not used when the program is executed,

the activation of the equipment is performed in response to supplying the power to the equipment,

when the activation of the equipment is instructed at the initial status, the executing unit stores in first and second areas of the non-volatile memory, the first and second variables obtained by decompressing the program, and additionally stores the second variable in a third area of the non-volatile memory,

at the time of the execution of the program, the second variable stored in second area of the non-volatile memory is used, and

when the activation of the equipment is re-instructed, the executing unit restores in the non-volatile memory, only the second variable in the second area among the first and second variables, by replacing the second variable in the second area with the second variable in third area which not used at the time of the execution of the program.