Referencing hierarchical data nodes

ACPI in general allows referring to device objects in the tree only. Hierarchical data extension nodes may not be referred to directly, hence this document defines a scheme to implement such references.

A reference consist of the device object name followed by one or more hierarchical data extension [dsd-guide] keys. Specifically, the hierarchical data extension node which is referred to by the key shall lie directly under the parent object i.e. either the device object or another hierarchical data extension node.

The keys in the hierarchical data nodes shall consist of the name of the node, "@" character and the number of the node in hexadecimal notation (without pre- or postfixes). The same ACPI object shall include the _DSD property extension with a property "reg" that shall have the same numerical value as the number of the node.

In case a hierarchical data extensions node has no numerical value, then the "reg" property shall be omitted from the ACPI object's _DSD properties and the "@" character and the number shall be omitted from the hierarchical data extension key.

Example

In the ASL snippet below, the "reference" _DSD property contains a device object reference to DEV0 and under that device object, a hierarchical data extension key "node@1" referring to the NOD1 object and lastly, a hierarchical data extension key "anothernode" referring to the ANOD object which is also the final target node of the reference.

```
Device (DEV0)
{
    Name (_DSD, Package () {
        ToUUID("dbb8e3e6-5886-4ba6-8795-1319f52a966b"),
        Package () {
            Package () { "node@0", "NOD0" },
            Package () { "node@1", "NOD1" },
        }
    })
    Name (NOD0, Package() {
        ToUUID("daffd814-6eba-4d8c-8a91-bc9bbf4aa301"),
        Package () {
            Package () { "reg", 0 },
            Package () { "random-property", 3 },
        }
    })
    Name (NOD1, Package() {
        ToUUID("dbb8e3e6-5886-4ba6-8795-1319f52a966b"),
        Package () {
            Package () { "reg", 1 },
            Package () { "anothernode", "ANOD" },
        }
    })
    Name (ANOD, Package() {
        ToUUID("daffd814-6eba-4d8c-8a91-bc9bbf4aa301"),
        Package () {
            Package () { "random-property", 0 },
        }
    })
}

Device (DEV1)
{
    Name (_DSD, Package () {
        ToUUID("daffd814-6eba-4d8c-8a91-bc9bbf4aa301"),
        Package () {
            Package () {
                "reference", Package () {
                    ^DEV0, "node@1", "anothernode"
                }
            },
        }
    })
}
```

Please also see a graph example in Documentation/firmware-guide/acpi/dsd/graph.rst.

References

[dsd-guide] DSD Guide.