

TITLE OF THE INVENTION: SEMICONDUCTOR PACKAGE ASSEMBLY WITH A WATER COOLING SYSTEM

Abstract

A semiconductor package assembly, comprising: a substrate; an interposer mounted on a front surface of the substrate via a set of interconnect structures; at least one frontside semiconductor element mounted on a front surface of the interposer; at least one backside semiconductor element mounted on a back surface of the interposer, wherein the at least one backside semiconductor element is spaced apart from the substrate by the set of interconnect structures to define therebetween a gap; a backside cooling device mounted in the gap between the at least one backside semiconductor element and the substrate, wherein the backside cooling device is thermally coupled to the at least one backside semiconductor element; and a frontside cooling device mounted on and thermally coupled to the at least one frontside semiconductor element.

[FIG. 1A]