WHAT IS CLAIMED IS:

1. A light-coupling device, comprising:

an interposer;

an optical chip, disposed on top of the interposer, the optical chip having a waveguide layer, a light-emitting surface of the waveguide layer being located at an edge of the optical chip;

an optical waveguide element, disposed on top of the interposer alongside the optical chip, the optical waveguide element including an incident surface facing the light-emitting surface, an emergent surface located at a top surface of the optical waveguide element, and a reflective surface located inside the optical waveguide element, a light beam emitted horizontally from the light-emitting surface entering the optical waveguide element through the incident surface, being totally reflected through the reflective surface, and being output as a parallel light beam in the vertical direction through the emergent surface; and

a fiber array connector, disposed on top of the optical chip, the fiber array connector including a carrier, an optical waveguide lens fixed to the carrier, and a plurality of fibers, the optical waveguide lens facing the emergent surface, one of both sides of the optical waveguide lens at the horizontal direction being a tilted reflective surface while the other being a light-coupling surface aligned with the fibers, the light beam being emitted from the emergent surface and entering the optical waveguide lens, being totally reflected through the tilted reflective surface and being coupled to the fibers in the horizontal direction,

wherein the optical waveguide element includes a light-transmitting layer and a light-reflective layer of distinct refractive indices, the incident surface is a surface of the light-transmitting layer corresponding to a vertical surface of the optical waveguide element, the emergent surface is located at a top surface of the light-transmitting layer, and the reflective surface forms a junction surface between the light-reflective layer and the light-transmitting layer,

wherein the reflective surface is a concave mirror surface, and the emergent surface is a plane, to allow the light beam at the horizontal direction to be totally reflected into a parallel light beam through the reflective surface and output through the emergent surface,

wherein the optical waveguide lens of the fiber array connector abuts the emergent surface of the optical waveguide element.

2. The light-coupling device according to claim 1, wherein a locating slot is disposed on top of the interposer, and the bottom of the optical waveguide element is fixed in the locating slot.
3. The light-coupling device according to claim 1, wherein the light-reflective layer and the light-transmitting layer are fabricated with distinct materials to allow the light beam to be reflected through the reflective surface.
4. The light-coupling device according to claim 1, wherein the light-transmitting layer is fabricated with a light-transparent material.
5. The light-coupling device according to claim 1, wherein at least one locating hole is disposed on the optical chip, at least one locating pole extends from the carrier

at a position corresponding to the locating hole, and when the locating pole is adhered in the locating hole, the fiber array connector is fixed on the optical chip.