"A massive temple with seven stately halls embellished with gold." That is how the haiku master Matsuo Basho (1644–1694) described Zuiganji in his 1689 travel diary and poetry collection Oku no Hosomichi (Narrow Road to the Deep North).

There has been a temple here since the ninth century when the priest Ennin (794–864) established a base for the Tendai school of esoteric Buddhism in Matsushima. Four centuries later, the Rinzai school of Zen Buddhism, then a new religion in Japan, built a temple here that gradually supplanted and absorbed the Tendai institution. Zuiganji is still a Rinzai temple today.

The current temple complex was commissioned in 1604 by Date Masamune (1567–1636), the powerful feudal lord whose clan governed much of northern Japan during the Edo period (1603–1867). The main structures took five years to complete. Masamune's Zuiganji, which served as the Date family's private temple, incorporates features common to other Zen temples but breaks with the sect's aesthetic austerity. Its lavish decorative elements—dark wood beams shipped from Wakayama Prefecture, elaborately carved transoms, colorful paintings on the gold leaf noted by Basho—are typical of the Azuchi-Momoyama period (1568–1600). The last decades of the sixteenth century marked the end of over a hundred years of civil war and ushered in a huge social transformation. During this period the arts flourished, and the first Europeans visited Japan.

Zuiganji's main hall and kitchen building (kuri) are designated as National Treasures.

The wide pathway leading to the main hall is lined with cedar trees. Many of the trees were damaged by seawater during the 2011 Tohoku earthquake and had to be cut down. Zuiganji was otherwise spared from the effects of the disaster thanks to its traditional earthquake-resistant construction and the protection afforded by the many islands of Matsushima Bay. A second approach to the main hall winds past ancient caves carved out by the ocean and further expanded by generations of visitors. These caves were used for Buddhist ceremonies even before the temple's construction. Today, they contain statues and Buddhist name tablets left by visitors to honor deceased relatives.